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## SOME PRACTICAL POINTS IN THE DIAGNOSIS AND TREATMENT OF PLACENTA PREVIA.*


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1. Definition; marginal, partial and central. 2. Main diagnostic point; hemorrhage during pregnancy; a dangerous sign and must never be passed over lightly. 3. Signs by vaginal examination. 4. Tamponade; pro and con; dangers, useful to gain time. 5. In primipara nature may stop hemorrhage with head; less likely in multipara. 6. Dilatation of os by balloon passed into uterine cavity; opened vessels thus pressed upon as fast as placenta is separated. 7. Podalic version. 8. Braxton-Hicks version; latter not feasible in central placenta previa; too rapid extraction to be avoided after either. 9. Danger of deep tears and rupture. 10. Cesarean section; cases adapted for classical or vaginal operation. 11. After care; postpartum hemorrhage; sepsis.

The name placenta previa well defines the condition; the placenta lies before the presenting part of the fetus. Because it lies attached to the lower segment of the uterus and consequently to that zone which must dilate and be torn away from the placenta as labor progresses, the hemorrhage which usually accompanies the labor in this disorder is well called unavoidable. Rigby, over one hundred years ago expressed this thought in these words: "A previa is fixed to the part of the womb which always dilates during the labor. Authors usually divide placenta previa into three varieties, depending upon the extent to which it lies previous to the presenting part. *Central* placenta previa, sometime called complete, is that form in which the placenta lies so directly over the internal os that it still covers it even when completely dilated. Therefore even after complete dilatation of the os one cannot feel anything but placental tissue between the examining finger and the presenting part. Even in the central variety the major portion of the afterbirth is usually to the right. It is to that side that we also usually expect to find the main body in the other two varieties. It has never been proven that the exact center of the placenta lies over the internal os directly. Therefore the term complete is better than central. In classifying the incomplete varieties of placenta previa different authors use slightly different and somewhat confusing terms. The word *partial* is used by many to designate a placenta lying partly over the os so that, after complete dilatation, the margin is felt by the examining finger together with a segment of the membranes. Some apply the term lateral to this variety. Others reserve the latter word to designate what is known by many authors as *marginal* placenta previa. This third class is that one where the placental border reaches down to the margin of the internal os but not beyond it. I would consider the best classification to be as follows: First, placenta previa centralis; second, placenta previa partialis, and third, placenta previa marginalis.

The prognosis in the three forms decreases in gravity in the order named. In other words it is worse the more the placenta lies in front, that is the lower it lies. Higgins collects 75 cases from the house and dispensary services of the Boston Lying-In Hospital and reports that there were 8 deaths. Six of the fatal cases were of the central or complete kind. Most of the large statistics hitherto published are taken from the preaseptic era and therefore the mortality rate is much higher than is now observed in modern times with modern methods. The highest reliable table was that of Simpson, who made the mortality 29%. Tait, who wished to prove the advisability of performing Cesarean section for all cases of placenta

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previa, stretched this rate of Simpson's to 40% and stated that he had no doubt that it was actually 50%. Higgins percentage of maternal deaths is probably about the average for maternity hospitals where many cases are received after being treated for a long time outside under unfavorable conditions, especially cases where excessive hemorrhage has already occurred. The mortality rate in the Boston Lying-In Hospital was practically the same for its out-patient and its in-door cases. The advantages of hospital care and paraphernalia in the latter is offset by the fact that the worst cases are apt to be sent in. The mortality in placenta previa at the Dublin Rotunda Hospital in the last ten years before 1902 was 4% in a series of 74 cases. Nine per cent is given by Klein as the maternal mortality at Chrobak's clinic in Vienna. Five women out of ninety-five whose cases were collected by Amadei and Ferri died.

The diagnosis of placenta previa is seldom made before the appearance of hemorrhage. Neither pain nor discomfort is occasioned by the condition and the attention of the patient is not called to it until flowing occurs during the pregnancy or until the attendant discovers the hemorrhage at the labor. Hemorrhage during pregnancy is the main point in the diagnosis. Even the slightest show of blood from the genitals of a pregnant woman should be considered as indicating placenta previa until it is proved to be due to some other cause. The hemorrhages occurring in the early months are frequently signs of threatened or impending abortion but may also be due to a low attachment of the afterbirth. It is rare for serious or fatal hemorrhage to occur in placenta previa during the first half of pregnancy. The proper treatment therefore for hemorrhage at that time is rest in bed and the same measures which would be instituted against threatened abortion. The hemorrhage of placenta previa is seldom accompanied by pain but that of beginning abortion often is. Doubtless indeed many abortions are caused by the early separation of a portion of a low lying placenta. If hemorrhage comes without dilatation of the cervical canal at any time during the pregnancy, but especially during the first half, rest in bed will commonly suffice to suppress it. The escape of blood from the uterus must always be considered a serious matter and must never be passed over by the obstetrician without most careful observation and examination of the case. Carcinoma of the cervix, erosions or other pathological conditions may sometimes be the cause of bleeding but, in the pregnant woman, the most common causes of hemorrhage are two: accidental separation of the placenta and placenta previa. The former is the precursor of abortion and occurs most often during the first half. The latter usually does not result in hemorrhages until after the sixth or seventh month. Müller found that the first hemorrhage in cases of complete placenta previa occurred most frequently between the twenty-eighth and thirty-sixth weeks and in the incomplete forms usually after the thirty-second week. In the marginal forms there was very often no hemorrhage at all before labor.

Besides the hemorrhage, which usually first calls attention to the abnormal condition of the placenta, there are commonly no other signs or symptoms in the first five months of pregnancy. During the latter half it will often be possible to feel by digital examination the softness and bogginess above the vaginal vault. If the placenta lies laterally or marginally the sensation of a soft mass below the presenting fetus will be more marked to one side, usually the right. Since abnormal presentations are more common with placenta previa than otherwise, the occurrence of such a presentation, as made out by external palpation, will sometimes direct one's mind to the abnormality of the placenta. In Müller's 1148 cases of placenta previa there were 272 cases of transverse and 107 cases of breech presentation. The frequency of such presentations may be due to the fact that the low lying placenta occupies the lowest portion of the lower segment of the uterus and therefore disposes the head, or to the softness of the lower segment preventing those regular contractions

of the muscle of the lower portion of the uterus which normally tend to maintain the usual vertex presentation. Then again prematurity is common in placenta previa and we know that breech presentations are common before the last two months of gestation. The cervix is long, wide and soft. Sometimes one feels transmitted to the examining finger the pulsation of abnormally dilated arteries in the cervix and lower segment.

Ballotement is usually absent. Absence of the morning sickness in a multipara who has been wont to suffer from that trouble in previous pregnancies is considered by a few authors as a diagnostic symptom of some value. The only positive sign is to feel the rough maternal surface of the presenting placenta by the finger passed into the cervical canal and through the internal os. Before the os is considerably dilated it is almost impossible to determine the variety of placenta previa with which one is dealing. The marginal form will soon be revealed as the os dilates because the finger will feel the edge of the afterbirth and the bag of membranes to one side of it.

If hemorrhage due to placenta previa takes place during pregnancy it is well to remember the words of Lusk, "There is no safety for the mother as long as the pregnancy continues." The first hemorrhage very exceptionally may be severe or fatal but is usually only slight. As the pregnancy goes on the successive hemorrhages become more and more severe. At any time and without warning by pains or otherwise may come a dangerous flooding. This may be at a time when no professional attendance can be speedily obtained and death or at least a dangerous degree of acute anemia may ensue before adequate measures are undertaken to prevent. Once the diagnosis is made it is surely a mistake to delay action on account of any scruples about the child. Only one-third of all cases of placenta previa reach full term. The mortality of premature infants is well known to be enormous even under good conditions. Even when the gestation progresses to full term the hazards of the labor are great for the child. Klein gives 69% as the mortality for the children. This is probably not far from the average throughout the world. Hantel, in a series of 123 cases of placenta previa observed a fetal mortality of 74%. The danger to the child, aside from prematurity, is chiefly from asphyxiation on account of losing the aerating function of all that part of the placenta which must become detached before delivery can take place. Even when maternal hemorrhage is stopped by the pressure of the presenting part, the tampon or the half breech, still a considerable part of the placenta is compressed and physiologically removed from being of any use to the fetus. Since the chances of the child are so small it is indicated to induce labor as soon as the diagnosis of placenta previa is made. In rare instances, where one can have the patient constantly under the care of a competent medical man or in a well equipped hospital, it may be justifiable to wait in the hope that the labor will hold off long enough to enable as mature a child as possible to be born. Yet we must remember that, even under the most favorable surroundings, the woman may have a serious flooding before aid can reach her. Women have bled copiously in their sleep and wakened to find themselves lying in a sanguinary pool.

The induction of labor, in such cases, will be of itself a grave operation and one fraught with danger. The very acts of the labor which we are inducing aid in producing the unavoidable hemorrhage which is dreaded. Therefore it is best to induce labor in such cases by introducing an elastic bougie and tamponing the vagina and cervix with sterile gauze. This is best introduced in one strip so that it can be easily and quickly removed. If the os is already dilated or, as soon as the stimulus of the bougie and the tampon shall have dilated it enough to allow the introduction of a small Champetier de Ribes balloon, such an instrument should be introduced. This conical bag will prevent hemorrhage from the opened sinuses as the os dilates. When dilatation has progressed far enough to admit two fingers bipolar version may be employed or the large sized balloon may

be introduced into the uterine cavity and left until the os is fully dilated.

Shall we tampon in the presence of copious bleeding at the beginning of labor? Tamponade is convenient and, if carefully and thoroughly done, certainly stops or at least controls the severest of the hemorrhage for a time. The gauze must be packed in tightly around the cervix and firmly into the whole vaginal cavity. Then a vulvar pad must be bound to an abdominal binder to hold in the tampon. The vagina is a muscular and elastic canal and stretches before very long so that a tampon, which was at first a tight fit, in time becomes loosened. Thus considerable blood may collect above the tampon and much may soak into its meshes. A tampon tight enough to be effective in such a grave situation as is present in a case of placenta previa is a very painful thing. It has an advantage of stimulating labor pains very strongly. The chief objection to tamponade is fear of septic infection. The gauze may be absolutely sterile, the hands of the operator may be encased in sterile gloves, the woman's external parts may be cleansed as much as possible but there is sure to be more or less infective matter passed up into the upper vaginal canal with the tampon. This infective matter will come from the vulva, which is never aseptic, in spite of the most painstaking efforts. It is impossible to pack in a tampon so that it will be effective in the object for which it is employed without getting it more or less contaminated with microbes from the folds of the labia, the vestibule, the urethra or the clitoris. When one is confronted with severe bleeding in a case of placenta previa at the beginning of labor, when the os is too little dilated for the introduction of a balloon or the passage of two fingers so as to perform bipolar version, or when one must at any cost stop hemorrhage until he can send for assistance, get the patient to a hospital or get ready for operation, then the tampon will be a good make-shift. Its use is justifiable in order to gain time for more permanent and rational proceedings. In using tamponade an element of uncertainty always creeps in as to the effectiveness of the hemostasis. Much bleeding may take place above a tampon not sufficiently tight and into the meshes of its texture before external signs of it appear at the vulva. In a woman who has already suffered loss of much blood this additional loss may be the last straw which will break the camel's back. Without anesthesia the struggles of the patient and the expulsive action of the voluntary muscles of the abdomen will interfere to a considerable degree with the proper tightness of the tamponade. Personally I am not a friend of tamponade in obstetrics. In placenta previa I would reserve it for those cases where the os is not yet dilated appreciably, especially in primiparae and where the initial hemorrhage is excessive. I should then consider it justifiable only long enough to enable the os to dilate enough to admit the two fingers necessary for the performance of bipolar version or for the introduction of the balloon. Where, in emergency cases, one is without competent assistance and is confronted with considerable hemorrhage, it would be indicated to tampon tightly in order to gain time to send for such assistance, to take the patient to a hospital or to prepare himself and his instruments for operation. Strassmann, in an exhaustive article based on the clinics of the Berlin Charité under Gusserow, advises strongly against the tampon, mainly on account of the dangers of infection. In the out-patient department, where tamponing was reduced to a minimum, the maternal mortality was 5%. Herz of Vienna also reserves the tampon for very exceptional instances and prefers, at the beginning of labor the colpeurynter instead of the gauze tampon.

In primiparae the head is usually engaged in the superior strait some time before the beginning of labor if that occurs at full term. If labor comes on a few weeks prematurely in a primipara the head, on account of the tenseness of the abdominal walls and the uterine musculature, is sooner forced down into the inlet than in multiparae. Therefore in the former patients we are less likely to require artificial measures to stop bleeding

after the os has dilated to the size of a quarter. The head will often come down far enough to plug the open vessels as the lower segment peels away from the placenta so that either the balloon or bipolar version will be unnecessary. The elasticity of the primipara's tissues causes enough pressure upon the lower segment, even during the intervals between uterine contractions, to prevent much loss of blood. The bleeding in placenta previa does not occur during the pains, that is during the contractions of the uterus, but during the intervals between the pains. During the contractions the open vessels of the placental site are closed by the action of the muscles and only bleed when that action ceases after the cessation of the pain. In a multipara the tissues, both abdominal and uterine, are more lax and there is little pressure by the presenting part upon the lower segment of the uterus during the intervals. The main danger in the case of the primipara is of a severe or fatal hemorrhage in a labor a few weeks premature while the os is still of small caliber and before the strong contractions of the uterine muscle with the corresponding retraction have pressed the presenting part down upon the dangerous area. This self-acting hemostasis in primiparæ is practically only present when the vertex presents. The soft small breech does not make so good a tampon as does the head. In a primipara with a vertex presentation one can dismiss anxiety as to dangerous bleeding after the head has entered the superior strait in its largest presenting diameter.

In the time from the beginning of the dilatation until the head does so plug the lower segment of the uterus there is ample opportunity for fatal hemorrhage. Here is the place for tamponade or, better, the use of the vaginal colpeurynter. With the colpeurynter one can inject enough water to keep the vaginal canal well distended all the time and has quick information concerning the bleeding by noticing the escape of blood from the vulva around the bag. No blood of course is absorbed by the rubber bag as is by the tampon and the escape of a very little from the uterus will be quickly evidenced by its escape from the vagina. One can loosen the bag from time to time to relieve the pain and can at once tighten it again at the appearance of hemorrhage. These ends are accomplished by opening the stop-cock and by injecting more fluid respectively. The colpeurynter is introduced by practically only one motion in a few seconds while the tampon must run constant risk of contamination from the vulva as it is gradually packed in. To the objection that the practitioner will be more likely to have materials for tamponade with him than to have a colpeurynter must be made the answer that every practitioner confronts the duty, when he undertakes to engage in the specialty of obstetrics, of possessing all the instrumental as well as mental accoutrements necessary to the undertaking of any case which he may meet. Although the colpeurynter and the Champetier balloon are made of rubber and are therefore not immortal, yet neither is expensive. It is to be doubted indeed whether every practitioner who takes obstetric cases carries in his satchel or can quickly obtain gauze of sufficiently reliable sterility for use as a tampon. The balloon and the colpeurynter are useful not only in the comparatively rare instances of placenta previa but also in very many other obstetric emergencies.

In the presence of hemorrhage with an undilated os it is manifestly imperatively indicated to stop the hemorrhage at once. Ergot and other styptics will not do it: the os is not enough dilated for the operator to perform version; nor is it dilated enough to admit the Barnes bag or the Champetier balloon. The bleeding must be stopped by pressure from below. As before mentioned I consider the colpeurynter a better means to that end than the tampon. One or the other must be employed. When the os has dilated enough to admit two fingers we have two measures open to us. Since Braxton-Hicks introduced the method of bipolar version which goes by his name in 1861 until the Champetier de Ribes balloon was brought to the notice of the profession about ten years ago the former was the preferred method

of treating placenta previa. It surely materially diminished the maternal mortality. In connection with aseptic technique it revolutionized the treatment of that condition.

As soon as the os will admit two fingers these are passed into the uterine cavity as far as possible while the hand occupies the vagina. It is essential to have the patient anesthetized. With the tips of the inserted fingers the head is pushed to that side towards which the occiput lies while at the same time the other hand outside pushes the breech to the opposite side. The head is gradually pushed away from the superior strait and the child is put into the transverse presentation. With the outer hand pushing down upon the breech and back, a foot is usually soon forced down into the reach of the inside fingers which grasp it and pull it down through the os into the vagina and even outside of the vulva. As the internal fingers pull down upon the foot the external hand pushes upwards on the head and the final result is the production of a half breech presentation. The conical shape of this thigh and half breech, especially if traction is exerted upon the foot, furnishes a plug which presses upon the wall of the lower uterine segment around the internal os and prevents bleeding as the os dilates. In most cases the case can be left to nature after the breech has been well drawn down but sometimes it will be necessary to exert a little traction to hold the presenting part in place. One has absolute control of the hemorrhage and none need be feared after the bipolar version has been accomplished. Drejer, reporting 49 cases which occurred in his private practice in Norway, states that he considers the Braxton-Hicks version the best method, although the mortality for the children was very great. Out of six cases which were febrile in the puerperium five had been tamponed before coming into his hands. Under the Braxton-Hicks method the mortality for the children is enormous. It probably averages over 75%. Among Strassmann's cases the fetal mortality was 81%. Version with immediate extraction gave in his cases a mortality of children of 52% but the maternal mortality under the latter circumstances was 20% while, under the method of bipolar version and spontaneous completion of labor, it was 10%. The fetal mortality is bad for three reasons. First the child is subjected to the increased dangers always present in breech cases, where normally the fetal mortality is about 15%. Second comes in the factor of prematurity which is so common in cases of this affection. Third the presenting thigh and breech press upon a much larger area of the placenta than is being peeled off as the os dilates. The base of the cone whose apex is the foot is represented by the circumference around the child's ilium and abdomen just below the navel. All of the placenta in contact with the fetal body from where the os clasps the leg to this base of the cone is compressed by that portion of the body. This placental area will often be a large proportion of the whole. During the pains and, if traction is exerted on the foot, also during the intervals a large part of the placental circulation is prevented from being of any use to the fetus and the latter dies of asphyxia. The more previous the placenta is the more of its structure will be thus compressed by the presenting part and so the worse will be the prognosis to the child.

The Braxton-Hicks bipolar version is usually very difficult or even impossible where the placenta previa is central. In order to reach the head with the two fingers within the uterus one must have only the membranes between them and the head. In the partial and in the marginal forms the fingers are passed to one side (usually to the left) until they reach membrane free from placental tissue and then do their work through that. In central placenta previa it will be necessary to bore through the placenta in order to reach the head. The distance is thereby increased by the thickness of the placenta and the difficulty is enhanced by the embarrassing presence of the placenta all around the fingers. It is extremely difficult to perform the manipulations necessary through a placenta so situated. The danger

to the child is also increased by boring through the placenta by the bleeding which may occur from the lacerated vessels on the fetal side.

Podalic version involves the passage of the whole hand into the uterus in order to seize a foot. This requires a much more dilated os than is necessary in the bipolar method and that means that much more placenta has been peeled away from the uterine wall around the os. Pains enough and a labor which had progressed long enough to accomplish so much dilatation would usually have sufficed to have brought the head well down into engagement and therefore have stopped the hemorrhage in that way. The dangers of too early extraction of the fetus after version done either by the Braxton-Hicks method or the ordinary podalic version cannot be too strongly emphasized. Attempts to drag a fetus through a partly dilated os will tend to cause deep lacerations or even rupture of the uterus even in cases of normal implantation of the placenta. How much more is this likely when we deal with the softened and tender tissue of the cervix and lower segment which exists in cases of placenta previa? The temptation to terminate the labor immediately after the foot has been brought down in the interest of the child or in the fancied interest of the mother must be resisted. The child should not be extracted after any form of version until the os is nearly fully dilated, any more than forceps should be applied before full dilatation.

The colpeurynter is a rubber bag, shaped when dilated like a short fat Bologna sausage or a Scotch haggis, and will hold about a quart. It is elastic and will fill up all spaces in the cavity in which it is placed. It is well adapted for filling the vagina for hemostatic purposes as well as to stimulate contractions. It may be used for insertion into the lower segment of the uterus to aid in dilating the os or to stop hemorrhage in placenta previa but its very elasticity is a detriment for that purpose. The Champetier de Ribes balloon is made of stout silk or other unelastic fabric covered with rubber. Its shape is conical with the apex running off into the filling tube. It only holds a definite amount of fluid (usually 500 c.c. for the large size) and cannot dilate to hold any more. It is well adapted for being placed in the lower uterine segment to aid in dilating the os or for stopping hemorrhage in cases of placenta previa. It does not press upon so much placental area as does the breech and body after Braxton-Hicks version and therefore the mortality rate for the children is better when it is used. It is sometimes called a hysteurynter. The method of introducing it is not difficult like bipolar version and is dangerous for neither mother nor child. It should be introduced upon a forceps guided by the index finger of the other hand during the interval between two pains. It is desirable to allow as little amniotic fluid as possible to escape.

In the Breslau obstetrical clinic the method of hysteurysis has been given a thorough trial and found to be an improvement on any former method. Kustner, from 1893 to 1897, in 22 cases treated by the balloon, had a fetal mortality of only 35%. Keilmann, in the same clinic, had 10 cases of placenta previa treated with the balloon and had seven living children while the other three were already dead before he began. Since then in the Breslau clinic, of 24 cases where the children were already living, 14 were born alive after the use of the hysteurynter: a mortality of 40%. Three mothers died in this last series: all hopeless when they entered the clinic. It appears that the use of the balloon is just as good for the mother as any other method and much better for the child.

The balloon may be introduced through the ruptured membranes in cases of marginal and partial placenta previa or may be placed in the cavity just inside the os below the placenta. In the latter case the placenta must first be separated from the uterine wall by the finger to make room for the balloon. Long ago Barnes recommended this stripping up of the placenta from the uterus in order to facilitate dilatation. The more or less adherent placenta must be a hindrance to the dilatation of the os which will be much soon-

er accomplished if the placenta has been separated by the fingers of the operator to the extent which would be effected naturally by full dilatation. The balloon is at once inserted and stops the hemorrhage. Many authorities advise boring through the placenta in cases of the complete type and putting the balloon into the amniotic cavity. Ponfick does this and then hangs a pound weight to the rubber filling tube to ensure constant pressure on the os. DeLee varies this by using a spring balance to measure the weight. This traction by a weight or by the hand of the operator always starts up strong uterine contractions often too painful for the patient to endure. The amount of traction can be varied at will. The balloon is fllled to its capacity with sterile water.

Of late considerable discussion has arisen among obstetricians as to the propriety of cesarian section for placenta previa. Since the passage per vias naturales requires the dilatation of the os and the unavoidable hemorrhage and since the methods of treatment along this line involve great danger to the child, some have thought to attack the problem at the other end and remove the child through the abdominal route, thus avoiding the hemorrhage and the dangers to the child. Prominent among them has been Reynolds of Boston. He holds that, inasmuch as the prognosis for the mother is at least as good in cesarian section in general as it is with the most approved methods now employed in the treatment of placenta previa, while the mortality for the child is now so bad by the usual methods, it is rational to perform cesarian section for placenta previa in the interest of the child. Zinke thinks cesarian section indicated in all cases of placenta previa centralis, especially in primiparae with a closed os and great hemorrhage which cannot be stopped by tamponade. I think few will disagree with him when he sticks to these limitations. That it is indicated in all cases of the central form without limitations is certainly open to discussion. Donoghue gives two indications for it: first, central placenta previa; second, placenta previa in primiparae with much hemorrhage and a closed os.

We must admit that the prognosis in cesarian section in the hands of good operators under favorable conditions has become very good in recent years. That does not say, however, that it will be as favorable for placenta previaa, which introduces a complication not present in the usual case of cesarian section. This complication is the existence of the placental site in the lower uterine segment where contraction and retraction are incomplete for a day or two after the end of the labor. Thus the tendency to hemorrhage is much greater. Then too placenta previa cases are seldom good subjects for such an operation as cesarian section, where so much depends upon perfect asepsis. The majority of cases are first seen under unfavorable surroundings and usually efforts have been made, often without aseptic precautions, to stop the bleeding or to deliver. Since labor comes on prematurely in such a large proportion of cases cesarian section could not hope to influence that large factor in the unfavorable prognosis for the child in such cases. As yet not enough cases of cesarian section for placenta previa have been reported for an impartial judgment. Until then I should reserve cesarian section for those cases of central placenta previa where there is marked hemorrhage with an undilated os, especially in primiparae. It must not be forgotten that the diagnosis of central placenta previa is not easy, indeed is often impossible before the os is somewhat dilated. As to the vaginal operation I cannot see any but the most exceptional cases where that form of cesarian section would be justifiable.

On account of the almost inevitable loss of considerable blood during or before the labor the patient is very likely to be anemic in the puerperium. For that reason she should be protected as far as possible from post partum hemorrhage to which there is a greater tendency on account of the faulty retraction of the lower uterine segment. Ergot, massage and similar methods will be employed. If hemorrhage ensues the hand

will be passed into the vagina to hold the os while the other hand firmly holds the uterus at the fundus. If this should not suffice tamponade of the empty uterus should be resorted to. It may be advisable to employ gauze soaked in a sterile solution of gelatine. Styptics, perchloride of iron and the like have gone out of vogue. After the bleeding has been controlled, subcutaneous injection of normal salt solution should not be neglected. A generous but easily digestible diet with frequent small meals should be prescribed. The woman should not be called upon to nurse her child. There will be greater danger than usual from sepsis because of the haste which must have been employed and the presence of the placental site so near the os.

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**Discussion on the Paper of Dr. Lewis.**

**Dr. Charles S. Bacon,** of Chicago: Mr. President, I cannot agree with the statement that the use of the metreurynter is easier than turning. If the bag is used, attention should be called to the bag of Vorhees, which is simpler and much cheaper than the original bag of Champetier de Ribes.

One important method of treatment was not mentioned, and that is the rupture of the membranes. When the head is presenting and has passed into the pelvis, then we have considerable hope that the presenting head will act as a tampon and we may in case of marginal implantation rely upon that. However, we can probably prevent considerable hemorrhage by the rupture of the membranes. By rupture of the membranes we prevent tearing away of the placenta, as the cervix dilates or retracts, and it is just in these cases that the old method of rupturing the membranes is of value.

[**Note**—The stenographer, at the request of the chairman, left the room to search for the men who were on the program to read papers at this time, consequently the first part of Dr. Bacon's remarks were not reported.]

**Dr. Joseph B. DeLee,** of Chicago: There are five points in the paper of Dr. Lewis of salient interest. The first point, as Dr. Bacon has pointed out, is the importance of recognizing the seriousness of placenta previa. The statistics given by Dr. Lewis should certainly warn everyone of the danger of hemorrhage in the last half of pregnancy.

Another point in the paper, but not one of the five, is the appellation "central." I think it would be wiser, from a clinical standpoint, to call all placenta previas central where at the time of examination nothing but placenta can be felt at the os. The only real central placenta previa that is recorded was one by Hunter, and it is pictured in his beautiful copper plates.

Another point in the paper to which I would take exception is the use of the bougie for the interruption of pregnancy in cases of placenta previa. The bougie is bound to separate the placenta; we cannot apply it on the front or back as we wish.

The tampon as opposed to the colpeurynter. To my mind it is of very little importance whether one uses the tampon or colpeurynter in the vagina to stop hemorrhage. I do not think we should use either. I do not think the tampon is of any service in a case of placenta previa. Of course, when applied by an expert, it might do some good, but even in the hands of an expert it does not, as a rule, stop hemorrhage. Dr. Lewis gave us the objections to the use of the tampon.

The use of the colpeurynter in the vagina is likewise, in my opinion, of very little application. In the first place, I have never seen a case of placenta previa in which it was impossible to insert the finger into the cervix in order to put in a bag. In forty cases of placenta previa up to now I have not found it impossible to insert the finger into the os suffi-

ciently far to apply a colpeurynter. Still, of course, a case may arise where the cervix is not sufficiently dilated to apply the colpeurynter, and in such a case I might be induced to apply a tampon, waiting for the cervix to dilate.

Another point in the paper was the application of the colpeurynter below the placenta—that is, in the uterus, but below the placenta. If one applied the colpeurynter in such a way, the colpeurynter is not responsible for bad effects, because it will push up the placenta and dislocate it, and hemorrhage may occur underneath. One of my first cases was attended by such a hemorrhage into the uterus, and accidentally discovered when I put my finger beside the colpeurynter, the blood running down, showing that it was coming out in the uterine cavity. The colpeurynter should be on top of the placenta, and simulate the fetal breech as much as possible. The colpeurynter, to my mind, is the greatest advance that we have had in the treatment of placenta previa since Braxton-Hicks' version. By putting in a colpeurynter you meet the immediate indication: You stop hemorrhage, and incidentally I will say that I do not use the Champetier de Ribes bag, but a Carl Braun rubber colpeurynter, with eminent success. It is safe and sufficient. As I have said, by putting in a colpeurynter you meet the first indication, which is to stop hemorrhage. You have time to think of and arrange for whatever operation is necessary.

**Dr. Roach, of————:** I have used adrenaline in two cases of placenta previa, and obtained good results. I would like to find out what the experience of the other members has been regarding its use.

**Dr. Rudolph W. Holmes,** of Chicago: I think it is a common belief that an obstetrical case is a medical one, with certain surgical aspects. It is entirely erroneous. An obstetrical case ought to be considered purely surgical, with certain obstetrical aspects.

As regards the surgical treatment of placenta previa, recently a paper came out in which there were reported 25 cases of Cesarean section for placenta previa. I have in preparation now a paper in reply to the above on that subject, taking the other side of the question, attempting to prove that it is an improper procedure. I have found that in these cases nine of the women were operated upon by seven obstetricians, and everyone of them had complications, as contracted pelvis of absolute or relative degree, or other extenuating circumstances. One of the women was operated upon because she had a contracted pelvis; the placenta was found deep down and approached the internal os at the time of an effective operation. The remaining sixteen cases were operated on by five surgeons, three gynecolpgists, and seven by general practitioners, not one of which had a complication warranting such a drastic measure as a Cesarean section.

I think it is wrong for a man who is not doing a particular line of work to lay down arbitrary rules of conduct in a branch of which he knows little or nothing. Tait in his original paper recommending Cesarean section for placenta previa said that for thirty years he had done no obstetric practice; that his consultation work included but few cases of placenta previa, with fifty per cent mortality. More recently one of our most prominent surgeons performed a Cesarean operation for placenta previa, and in his report stated he pursued this course because he was versed in the technique of Cesarean section and did not know how to do version. I think that is a very wrong position to take. If he did not know the right treatment to carry out, he should have called an obstetrician to help him or better to assume charge of the case.

**Dr. Lewis** (closing the discussion): I wish to thank the members for their kind and free discussion of my paper.

Dr. Bacon spoke of the cotton tampon being better than gauze. I think, in the use of tampons, it is largely a question of personal opinion. The difficulty about cotton is difficulty of asepsis and of having good sterile material, as well as great difficulty in getting a cotton tampon out quickly. As Dr. DeLee has told us, when the os is fully dilated, it is essential that we go to work at once, do version, put on forceps, or otherwise terminate labor as soon as we can. I do not use cotton tampons, but it strikes me that it would be harder to remove pledgets of cotton as a tampon than it would be to remove gauze in one strip, and both methods take much longer time than to let the water out of a colpeurynter. Why the doctor should use a weak antiseptic, I do not quite see. Unless it is strong enough to kill microbes it is useless and if it is strong enough to do that, it is too strong an antiseptic to be used in such a place. If it is only a weak antiseptic, by the time it acts to kill microbes, the placenta previa case ought to have been completed before the antiseptic action gets in its work.

Dr. De Lee's criticism of the nomenclature is well taken. If I understood him correctly, he would leave out marginal and lateral. Almost all lateral cases would be to him central. There are really no cases of true central placenta previa, except those rare instances in which the exact center of the placenta is over the os.

Dr. DeLee also criticized the use of the bougie in inducing or interrupting labor. The bougie, as a means of producing separation, cannot do much harm as regards increasing hemorrhage. It is perfectly aseptic, and if introduced properly, I do not see how it can be attended with any particular danger in causing sepsis. I think he is right that in most cases we can introduce a small sized bag, or a Champetier de Ribes bag, but there will be cases—and I think I have seen one or two—where one could not with any degree of ease introduce the bag but where the bougie would be useful. I think Dr. Bacon said that the bag should never be put under the placenta, and in that connection he took exception to what I stated. If the placenta is entirely stripped up to the extent it would be with full dilatation of the os, before you put the bag in, the parts cannot be

separated any more. Separation takes place; the lower uterine segment being pulled away. You have already done the separating; you simply have dilatation. Barnes, I believe, is one of the prominent authorities who recommends that digital separation always be done in the treatment of placenta previa. Otherwise you have to go through the placenta if it is centrally located. In lateral placenta it is easy to go through the membranes. In placenta previa, where the placenta is over the os, you may bore through a mass an inch thick; then the colpeurynter presses down upon a large amount of material, and there is some danger of tearing vessels. I think it is well for us to emphasize what Dr. DeLee stated about terminating labor as soon as the os is dilated by version or, if the head has come down nicely into the pelvis, by the application of forceps at once.

One of the gentlemen spoke of the use of adrenalin. This is an agent to which I have not given any thought, so that I am not prepared to speak of its merits or demerits in cases of placenta previa.

## INDICATIONS FOR INTERVENTION OF GASTRIC ULCER.*

BY A. T. STEWART, M. D., ONEIDA.

In surgery of the stomach we are interested for the most part in that which relates to gastric ulcer and its sequelae.

If we exclude measures instituted for the relief of conditions due to traumatisms congenital malformations or benign stricture, practically all other interests are involved in the relief of the immediate or remote results of ulcer.

The prevalence of gastric ulcer has until a comparatively late date been much underestimated. Mayo Robson of England estimate it at from five to ten per cent of every community. As to the direct cause of ulcer many theories have been advanced. Anaemia and angioneurotic conditions incident to the adolescent age are most important factors. Associated with these chronic nephritis, hepatic cirrhosis, cholecystitis, pancreatitis, chronic appendicitis and bacillary invasion of the lymphoid follicles of the gastric mucosa must be considered.

Ewald on lectures on digestion says "whenever living blood circulates in the mucous membrane under normal pressure, the gastric juice has no point of attack, but when the normal blood nutrition ceases, either in consequence of emboli (Virchow) or of ligation of vessels (Pavy), and necrosis of tissue occurs, then, as elsewhere, the gastric juice digests the dead tissue."

It would appear in the light of later surgical experience that our text books, particularly those on Practice, are in need of revision and our basis of diagnosis changed in relation to gastric ulcer. The usual conception of this condition has been limited to the three classical symptoms of pain, vomiting and hematamesis. As a matter of fact it is astonishing how seldom a gastric ulcer is suspected until a copious hemorrhage supervenes. The consensus of opinion among our most experienced surgeons indicates that in probably 60% of cases this symptom is absent, consequently if we were to rely on this classical symptom, it is obvious that not more than half of these cases would be recognized.

Pain following from a few minutes to several hours after eating is a very constant symptom of gastric ulcer. It is variously described as gnawing, boring or stinging, and corresponds to a point of tenderness about two inches below and a little to the left of the ensiform appendix, the so-called Brinton's point. If the ulcer is on the posterior wall of the stomach a point of tenderness is found a little to the left of the last two dorsal vertebrae.

The tenderness in the epigastrium due to gastric ulcer differs from that of cholecystitis in that in the latter the pain radiates along the level of the tenth rib to a point at the angle of the right scapula. In ulcer the pain is usually felt at the angle of the left scapula. The pain of gastric ulcer has a further significance in that it marks a relatively advanced progress of the disease.

Contrary to the general impression the greater part of the stomach wall is relatively devoid of sensibility. It is only the parietal peritoneum that has sensory nerves and the ulcerations of the gastric mucosa do not cause pain until the irritation incident to it affects the parietal peritoneum, or that which lines the under surface of the diaphragm. Extreme epigastric tenderness is not so much

*Read at the 54th Annual Meeting, May 17, 1904.

pathognomonic of ulcer as that the ulceration is extending and perforation imminent.

Vomiting and nausea are frequently associated with ulcer, but as these conditions are common to functional gastric affections they are in no sense pathognomonic, but of considerable corroboratory value. The same may be said of hyperacidity, which condition is, however, said to occur in ninety per cent of gastric ulcers.

There is one symptom which has been especially emphasized by Futterer of Chicago, which I think marks a most important advance in the diagnosis of gastric ulcer. This is a persistent haemoglobinaemia and upon it largely, depends the ultimate prognosis of ulcer either from a medical or surgical standpoint. Moreover, the failure to recognize this condition is largely responsible for the subsequent non-healing of gastric ulcer treated by the various methods of rest cure and rectal feeding.

These patients constantly show a haemoglobin percentage of from sixty-five to forty per cent, and the ultimate prognosis is obvious unless we appreciate the necessity of overcoming this deficiency.

At the present I wish to outline Futterer's mode of treatment, the success or failure of which determines the necessity of surgical intervention.

(1) If we diagnose an ulcer of the stomach, or if in the absence of convincing symptoms, which are so often lacking, we have cause to suspect an ulcer, we must at once ascertain the percentage of haemoglobin.

(2) We advise the patient to go to bed, either in a hospital or at home, employing the services of a trained nurse.

(3) We give the juice of five pounds of fresh beef daily, as the case may require, to bring the percentage of haemoglobin up to normal as soon as possible (prepared beef extract does not give the desired result).

DIRECTIONS FOR PREPARING THE BEEF JUICE.

(a) Order five pounds of finely chopped round steak to be brought in at eight o'clock every morning. The fat should be removed before the beef is chopped.

(b) Mix with the meat a teaspoonful of salt and put in the upper part of a double boiler; cover without adding water.

(c) Fill the lower part of the boiler with warm (not hot) water.

(d) Keep the boiler on the kitchen stove for four hours, keeping the water in the lower part just warm.

(e) Turn the beef every hour.

(f) After four hours press the juice out with a potato masher, season, and let the patient drink in two portions, one-half at dinner and the other half at supper time.

Five pounds of beef will yield about a pint of juice.

This treatment may be supplemented by rectal feeding.

In every case of gastric ulcer there are two prognoses to be given. (1) that which relates to immediate repair of the ulcer and disappearance of symptoms; (2) the ultimate prognosis which relates to the amount of pyloric stenosis and consequent dilatation, and more especially the probability of remote carcinoma.

Competent observers claim that ninety per cent of gastric carcinoma develop from pre-existing ulcers.

Futterer, in recent autopsy, found an ulcer in the lower pyloric region the lower border of which had undergone distinct malignant degeneration, while the upper border was still benign, indicating the mechanical effect of food irritation, a factor, the significance of which cannot be over-estimated.

When we consider some of the complications of gastric ulcer the indications for surgical intervention become apparent.

Among these are (1) perigastritis with adhesions; (2) local peritonitis ending with localized abscess; (3) subphrenic abscess; (4) abscess in neighboring viscera, as the liver, pancreas and spleen; (5) acute perforations of the stomach wall; (6) haematemesis and melena; (7) tumor of the pylorus; (8) cicatrical stenosis of the pylorus with spasm; (9) atonic motor deficiency; (10) tetany; (11) adhesions around the bile ducts producing cholecystitis, pancreatitis, with attacks simulating gall-stone colic; (12) carcinoma.

In intractable and recurrent cases, operation should be resorted to much earlier than

as heretofore been the custom, in view of the fact that the latest statistics indicate a striking contrast of twenty-five per cent mortality in cases treated medically as against five per cent treated surgically. Out of 177 operations as reported by Mayo Robson for simple diseases of the stomach, 165 patients recovered, or about 93%. Again we must consider that only in the past decade has the surgery of gastric ulcer been worked out and the cases reported are largely made up of those referred to the surgeon as a court of last resort.

In the operation of gastroenterostomy much controversy has taken place as to the relative merits of an anterior and posterior union. Latterly however, surgeons are coming to appreciate the real indication of the operation, that is, to secure perfect and adequate drainage to a dilated stomach, and to secure this condition the union should be made at the most dependent portion of the organ. Having this in mind we hear less of the so called vicious circle.

HISTORY OF A CASE.

Mrs. C. G. R. age 29, married two years, family history good. Menstruation commencing at the age of 12, regular but at times painful and scant. Since age of 14 remembers suffering from a dull pain in epigastrium with attacks lasting from several hours to a week, attended with vomiting and eructation and gas. The trouble was such as required the services of different physicians and was variously diagnosed as biliousness, dyspepsia, catarrh of the stomach, etc.

Latterly these attacks were increased in severity with pain radiating to the back and up under the left shoulder blade. No special note had ever been made of the appearance of the feces.

Patient came under my care in Feb. 1902.

Condition: anaemic, hemoglobin 50, appetite variable, tongue coated. Temp. normal, pulse 82, heart and lungs normal, urine normal. Pain constantly in epigastrium with no special reference to eating, vomited occasionally. Tenderness in epigastrium with very painful point two inches below and a little to the left of ensiform appendix, with a corresponding point of tenderness as already indicated posteriorly. Diagnosis of gastric ulcer made and patient placed on a milk diet with large doses of bismuth subnitrate.

About ten days later the patient had a severe hemorrhage during the night, vomiting about a pint of blood and in the next few hours had twenty bowel movements of clotted blood. Treatment consisted of adrenalin by mouth, morp. Sulph. subcutaneously together with an enema of calcium chlorid, two drams to a pint of water.

Patient was at once taken to Augustana Hospital, Chicago, where for two weeks she was kept exclusively on rectal feeding, under which treatment acute symptoms subsided and on March 10th a gastroenterostomy was done by means of Murphy button. Patient improved rapidly, gaining about 35 pounds in two months, and eating common food without any special discomfort.

In September, four months later, secondary symptoms of pyloric obstruction began to appear. Appetite was failing, weight diminished and vomited shortly after eating. She again returned to the hospital and a pylorectomy was performed and at the same time the gastroenterostomy opening enlarged. The pyloris was found to be almost closed due to the healing of the previous ulcer. The gastroenterostomy opening was also almost closed, due to the fact that the nutritional changes following the first operation had enabled a stomach previously myasthenic and dilated to contract to its normal proportions, thus narrowing the new opening. Following this, patient again made a rapid recovery, and in a short time was able to eat without discomfort, regained strength and did her own housework.

An unusual sequel to her previous experiences was the fact that one year later patient underwent an operation for ectopic pregnancy complicated with a perforated appendicitis with complete recovery.

CONCLUSIONS.

1. Gastric ulcer is an affection more common than has generally been supposed, and if we rely on the so-called classical symptoms we will fail to render an early diagnosis of about 50% of cases.

2. All cases of suspected gastric ulcer should first be submitted to thorough medical treatment along the lines of rest and suitable diet with the object of having the hemoglobin approximate the normal.

3. Should the ulceration prove intractable, or relapses occur, gastroenterostomy should be performed to secure the physiological rest necessary to the repair of the ulcer.

4. Perforation demands immediate operation.

5. Remote complications such as disabling adhesions around the pyloris.

Pyloric contraction, kinking of the bile ducts, great dilatation serious impairment of health with loss of health, generally treated as chronic indigestion are all practically surgical cases.

6. In repeated small hemorrhages, or the so-called chronic hematemesis with persistent anaemia surgical intervention is indicated.

**Discussion on the Paper of Dr. Stewart.**

**Dr. A. J. Ochsner,** of Chicago: Mr. President, I have been very much interested in the paper of Dr. Stewart, and am also interested in the treatment of gastric ulcer. Dr. Stewart's case illustrates a class of cases which we have not very clearly understood until recent times. Even the sequel of the case has a very distinct bearing upon this class of cases. I am not positive as to the exact number of cases of gastric ulcer I have operated upon, but the number exceeds one hundred, and of this number there is quite a proportion of cases in which one could develop by careful study the condition of appendicitis in childhood or early in life, accompanied with gastric disturbances. Now and then, I believe that the etiology of gastric ulcer in these cases is as follows: I believe that the presence of a club-shaped appendix containing mucus and enteroliths affects the ileocecal valve, so that the passage of intestinal contents into the cecum is obstructed. In the case reported there was a large, club-shaped appendix, which was perforated near the end. I believe that the distress of which these patients complain is due largely to interference with the passage of intestinal contents into the cecum; that these patients have, first, a physiological obstruction at the ileocecal valve, then a physiological obstruction at the pylorus, and that this in turn favors the formation of ulcer of the stomach. Many of these cases have had appendicitis and later on developed ulcer of the stomach. At first, it seemed in these cases that one or the other diagnosis must have been wrong, but I believe the histories of the cases have shown that there is a definite etiological relation, and that ulcer of the stomach is some times secondary to the obstruction of the ilio-caecal valve due to appendicitis.

The points made by Dr. Stewart as regards treatment were excellent. In the first place difficulty arises from a lack of drainage through the pylorus; that is, the stomach accumulates residual substance, which is a good feeding place for the microorganisms of decomposition and sepsis, and this in turn favors the development of gastric ulcer. Obstruction increases the accumulation of mucus in the stomach which first serves to protect the ulcer, but later on also covers the food, and in order to secure digestion, there must be an increased secretion of hydrochloric acid for the removal of the mucus that covers the food, and this in turn will act as an irritant upon the ulcer and will increase ulceration, so that a vicious circle is developed. Free drainage should be established by making anastomosis at the lowest point of the stomach, to have it funnel-shaped, so that food must pass into the intestine. Consequently there will be no vomiting of bile, and the so-called vicious circle does not occur when we have made our anastomosis at the lowest point of the stomach, as has been brought out by Mayo, of Rochester. Having made an anastomosis in this case in a greatly dilated stomach, the ulcer healed in the pylorus and digestion was normal for a time, and the anastomotic opening was no longer needed and consequently it contracted until it had attained the size of a lead pencil, when the irritation reopened the ulcer in the pylorus, which again resulted in obstruction and a return of the entire series of symptoms. Consequently an enlargement of the gastroenterostomy opening and excision of the pylorus were indicated to establish as nearly as possible normal conditions. There is a certain proportion of cases of pyloric obstruction due to ulcer with subsequent gastric dilation in which the patient is relieved temporarily by a gastro-enterostomy but in which subsequently the same symptoms which necessitated the primary operation are re-established. It seems that the drainage of the dilated stomach into the intestine through the anastomosis opening relieves the ulcer of the irritation due to contact with food and residual stomach contents and that consequently the ulcer heals and the induration about the ulcer as well as the spasmodic contraction of the pylorus having subsided the passage of food from the stomach into the intestine can proceed nearly normally. There is consequently for the time being no further physiological use for the anastomosis opening and this may become greatly contracted or entirely obliterated.

It frequently happens, however, as in Dr. Stewart's case, that the pyloric ulcer reopens and this in turn brings about the original symptoms.

Whenever this happens the treatment used in this case is indicated. The gastroenterostomy opening should be enlarged and in order to prevent a further recurrence the pylorus should be excised.

In the last eighty cases I have made the gastro-enterostomy opening seven and one-half c. m. long in order to prevent contraction.

In these recurrent cases we make the ordinary pylorectomy. Until recently we had the impression that a pylorectomy was a serious operation. As a matter of fact, it is one of the simplest operations that a good surgeon can do, if he does it in as reasonable a way as he would do any other operation. The lesser omentum above, the greater omentum below the pylorus should be first located. An inch and a half or two inches of duodenum can be manipulated without difficulty; consequently it is necessary only to make a small tear in the lesser omentum and another in the greater omentum in order to isolate the pylorus. Pressure forceps are applied above and below the pylorus which is excised together with the ulcer. This produces a condition very similar to that which is present after having clamped off the appendix. If it is desired simply to invert the end of the intestine and the end of the stomach, a circular suture placed about their ends and tightened will force or shove the crushed end of the intestine into the lumen of the intestine. This finishes the operation, with the exception of the insertion of a few superficial sutures, to enforce the original suture. At this point it may be well to go a step further, which was done in this particular case.

Some four years ago Professor Rodman, of Philadelphia, brought up the matter of disposing in these cases of the ulcer-bearing portion of the stomach. This portion of the stomach which contains seventy-five per cent. of all ulcers, and almost an equal percentage of all carcinomata of the stomach, may be readily removed without difficulty by simply successively grasping the greater omentum and the lesser omentum until a point beyond the ulcer-bearing portion has been reached and then simply repeating the other procedure, applying two pairs of forceps, and cutting between them again and inverting the stomach. This portion of the operation is simple.

It has not been determined in what proportion of cases this more extensive operation should be employed, but there is no doubt, but what it is worthy of serious consideration.

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## THE LORENZ OPERATION AS SEEN IN THE AMERICAN STATISTICS.

BY FREDERICK MUELLER, M. D., CHICAGO.
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Dr. Ridlon has recently published in a few articles (Journal of the A. M. A., April 16 and 23, 1904) the experiences he has had with the bloodless reduction of the congenitally dislocated hip-joints; the author in this paper brings before the public statistics of the results he himself has obtained since 1897 in this field and the results of some cases operated upon by Dr. Lorenz during his stay in America in 1902. Certainly the great interest aroused by the accessory circumstances of Lorenz' visit, shared by the profession as well as by the laity, makes a statement about the efficiency of this operation which is a comparatively new one exceedingly desirable.

The value of every new method must be tested in the most thorough way and has to stand new tests in every country to which it is brought even though it should have been recognized abroad as very effective and useful. But in making these tests, we should not be prejudiced; our judgment should not be too sanguine, nor should we permit skepticism and unfounded refusal to control our mind.

Certainly Dr. Ridlon in criticizing the Lorenz method does not fall into the first mistake. This is to be seen from his comparison of the Lorenz operation with "the excision of the breast for cancer which we did not condemn, when the ultimate mortality was 90%." This comparison of the Lorenz method by which its ultimate results are characterized so far as perfect anatomical cures are concerned, seems to me out of place here and more than pessimistic.

Dr. Ridlon explained his opinion as he was able to form it from the published facts collected by him. I do not wish to criticise these facts, but wish to state that a mere enumeration of the cases with the results regardless of the age limits can not clear this question, especially when important features of the after-treatment are omitted. As Dr. Ridlon for instance says nothing about the very important secondary replacement in those cases, that he reports as "anterior transpositions," —(head prominent in the groin or on the horizontal branch of the pubic bone)— I think I am justified in making this remark.

Dr. Ridlon's statements on the Lorenz method are in need of rectification; otherwise it would seem, that we approve of his skepticism.

First I wish to give a few preliminary notes about the dispute between Paci and Lorenz concerning the claim of priority. I

think a clear statement in this direction is very important, as by Davis' representation of this subject, quoted by Ridlon, the differences of these methods are obscured to such a degree, that if Davis' representations were right, Paci indeed would have played the most conspicuous part in the development of that which we call today the Lorenz method.

That this is not the truth an analysis of the principles of both methods, will show.

The most prominent features of the Lorenz method are the following:

1. The essential point for the success of the treatment, and, therefore the aim of the operation is the reposition of the head *into* the socket.

2. This is performed (a) in small children by rectangular flexion of the thigh, simultaneous pressure on the trochanter and traction combined with abduction or (b) in older children by ultraphysiological movements of abduction with simultaneous pressure on the trochanter in rectangular flexion of the thigh.

3. The result thus gained is maintained by the *ultraphysiological* position of abduction of the thigh, which is brought in this position from a rectangular flexion. Position of greatest contact of the parts of the articulation, position of greatest stability.

4. The changes in the position of the leg caused by the operation and the fixation are corrected by the subsequent treatment with careful consideration for maintaining the stability.

The standpoint of Paci will be briefly demonstrated in a similar way but instead of quoting personal views of the different authors or reports which are often not well understood, I wish mainly to quote Paci's own words.

Ad. 1. Regarding Lorenz's requirement given sub 1. which urges the reduction of the head of the femur into the socket as the first principle of the treatment, I quote Paci in one of his papers (Wr. klin. Wochenschr. No. 25 and 33, 1896):

"The result (of Paci's operation) is often an excellent one, as the head retakes its natural position in the socket, so that there is a real and positive reduction. But one does not always succeed in doing this. The head may place itself below the anterior superior spine or outside of it."

And in another place in the same paper: "Was it not the case that not only Lorenz but also most of the other surgeons attacked me thinking that I spoke of a real reposition into the socket." Further: Revue d'orthop. 1894 p. 233.

"If the surgeon is able to reduce the head of the femur towards a place of the bony surface of the pelvis more or less near to that which is physiologically developed into the socket—and if he succeeds in keeping it there, one gets finally a complete organization of nearthrosis."

From these explanations it may be perceived that 1. Paci did not aim at an anatomical reposition strictly, but that he got it occasionally under certain circumstances as an accessory result, (he however failed to show this), 2. that he did not characterize the anatomic reposition as the principle of his method. Therefore we meet in his description the rather vague expressions: "reduction of the head in the neighborhood of the acetabulum or place nearer to the socket" and so on, instead of strict anatomical terms.

Ad 2. The description of the four Paci manoeuvers, I quote from the papers mentioned above: (a) Flexion and pressing of the thigh in axial direction, "it is sufficient in proceeding with flexion to keep within the physiological limits." (b) Abduction, "it may be continued until the knee stands about 15 cm distant from the lateral line of the body in an outward direction." (c) Rotation, "an outward rotation of the thigh is executed and at the same time the abduction is increased." (d) Extension, "with stopping at the point where reposition occurs."

Regarding the slight degree of abduction, he is recommending, he says: Lorenz however advises forcible abduction and states positively that it is by this manoeuver that the reposition is effected. I may be permitted to prove the impossibility of executing such a degree of abduction (Paci means the ultra-physiological abduction) as this

almost prevented by the abductors even in a normal person; certainly one cannot succeed in doing this in a case of congenital hip dislocation, even though the thigh should be flexed."

Paci himself highly appreciates the phase (3) Rotation, and says: "I think it proved by the above statement that a reposition cannot be effected by the third phase of Lorenz's method (Abduction). Well knowing this fact I added to the abduction, rotation in order to overcome the resistance of the abduction." Although the anatomic foundation of this last sentence is not quite clear, the meaning of the same needs no comment.

FIGURE 1

In these sentences Paci simply denies the possibility of accomplishing a reposition by abduction after the Lorenz method; therefore according to his opinion Lorenz could be nothing less than a plagiarist. Negation instead of criticism. In another place Paci says: "The 3. Lorenz movement is abduction; I execute it in the second place but only slight abduction as that is sufficient. This slight abduction is adapted to the mechanical condition. But Lorenz wishes forced abduction and claims that in doing this, reposition of the head is produced."

Paci pretends here that it is only by his manoeuver of rotation (his 3 phase of the operation) that the resistance of the adductors is overcome. This is rather enigmatic. The resistance of the adductors, which after Paci cannot be overcome by abduction is surmounted by the Lorenz method by Myorrhexis and in some cases by tenotomy. As Lorenz in the beginning operated upon small children only, the adductors did not present special resistance giving way of themselves. In older children Lorenz used to resort to tenotomy until later he performed the myorrhexis methodically in all cases.

When Paci states that a moderate degree of abduction suffices, this will do certainly for bringing the head nearer to the acetabulum, as Paci urges; Lorenz however does not confine himself merely to bringing the head nearer to the acetabulum, but urges replacing it by abduction, the same motion which Paci declares unable to accomplish a reposition. From this passage alone it may be perceived that abduction with Lorenz and with Paci means different things.

In fighting and criticizing the Lorenz method Paci himself points out the differences very well but does not concede that the Lorenz method is entirely different from his regarding the aim as well as regarding the means.

The method of Lorenz applied in small children "the off hand reposition" differs so much from Paci's method that there is no

need to point out the differences. Only in older children where the block is used to accomplish the reposition the Lorenz manoeuvers require some special explanations. A brief juxtaposition of Lorenz and Paci's procedures does not seem out of place.

Paci flexes the thigh at an acute angle abducts slightly, and rotates the femur; in favorable cases the head comes below the acetabulum and *in making the extension he* accomplishes sometimes—always favorable conditions provided—a reposition over the *inferior* rim of the socket.

Lorenz flexes the thigh rectangularly thus bringing the head behind the acetabulum, abducts beyond the physiological limits and

FIGURE 2.

causes a reposition over the posterior rim by continued abduction.

The apparent relation between the two methods is caused by the use of the abduction in both, in order to secure a new place for the head—being *the socket* in Lorenz', *a place near or below the socket* in Paci's method. With Paci the abduction combined with the flexion and the axial push of the thigh has to press the head below the level of the acetabulum, with Lorenz the increasing of the abduction of the rectangularly flected thigh brings the head over the rim into the socket.

With Paci therefore the flexion, abduction and rotation of the thigh are nothing but preambulary manoeuvers, the movement o the ultimate position or reposition (if it b allowed to say so) being the 4th phase th extension. With Lorenz the rectangula flexion is the preambulary manoeuver, th movement of the reposition being the abduc tion or properly speaking the ultra-physio ogical abduction.

Abduction in a general sense was intro duced and recommended for the treatment o traumatic dislocations before Paci and Lor enz, by Malgaigne, Fabbri and others an cannot be regarded as anything new. Als the experiments to reduce the head of th congenitally dislocated femur cannot be re garded as new, as Pravaz, 1838, and man

others worked on this same problem. Bu indisputably new was the introduction an the use of the ultra-physiological abduction which in the operation on older childre proved most effective and which during th period of fixation represents the main facto for securing stability.

Ad. 3. The fixation of the result brought about by Paci (Rev. d' orthopedi by a plaster cast in slight abduction combi ed with extreme ectrorotation and artificia extension of the thigh by weights (4-6 K during the first month. Paci thus fixes h ultimate position: Lorenz likewise fixes h ultimate position but in his case it is ultra physiological abduction of the rectangular

flected femur without any special rotation of the same. This is to be seen from the fact, that Lorenz does not lay any stress on the fixation of the inferior part of the leg.

While the manner of fixing in Paci's method corresponds more or less to the manner of fixation in cases of traumatic hip dislocations, Lorenz in fixing his ultra-physiological position was quite original. Lorenz followed this course even in his first attempts as it was shown by the presentation of some cured cases at the meeting of the I. R. Soc. of Physicians in Vienna, Jan. 31, 1896, where the ultra-physiological positions were mentioned (Wr. klin. Woch, 1896 Nr. 5).

While Paci keeping his patients in casts confines them to bed, and applies besides an extension (apparently not quite trusting to the stability of his result), Lorenz allows his circumstance, whether rightly or not, the theory of the functional development of the socket by bearing the weight of the body. Paci makes the same claim for his method. I personally do not attribute enough importance to this instance to enter into the details of the subject.

Ad. 4. An after treatment according to Lorenz is not to be found in Paci's method, as the leg a priori is fixed in a position so little different from the normal position, that there can be but very slight anatomical changes as far as the position is concerned. It is quite different in Lorenz' case; the femur rectangularly flected and ultra-physiologically abducted demands the correction of patients to walk around and bases on this position.

How little Paci conceived the characteristics of the ultra-physiological abduction is to be seen from his paper quoted above: He emphasizes the fact that, "he himself fixes in slight abduction and that Lorenz relinquishes his extreme abduction in the course of the treatment," so that he cannot find any difference between the degree of his abduction and that of Lorenz'. Paci seems to think, that the ultra-physiological position with Lorenz is an unnecessary means adopted only to veil his plagiarism, a position which could as well be corrected immediately to a slight abduction and fixed in this way. Everyone who has had the opportunity to see or to perform an operation after Lorenz must admit that this opinion is wrong, as the diminishing of the degree of abduction and the bringing down of the leg to a position of slight abduction is the well known manoeuver of redislocation used in order to try the stability of the joint.

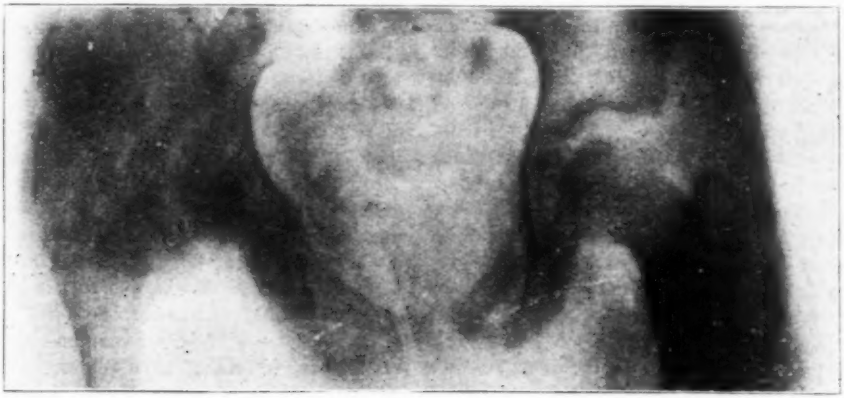

FIGURE 3.

This passage quoted above is quite a good proof that Paci was not familiar with the history, the aim and the value of the ultra-physiological positions used by Lorenz.

I am intentionally as brief as possible, only

pointing out the main features and not giving too much of a comment. If these arguments do not establish the great differences between the two methods, I can only suggest a re-investigation of Paci's different papers.

The much talked of specimen from a child with a double congenital dislocation operated upon by A. Nota (Atti di congr. internat. Roma 1894) showing anatomical replacements does not prove much. In this case the reduction was brought about as a chance result, which under very favorable conditions Paci's method is able to accomplish sometimes. But in the practice of Paci's method such a result is rather the exception than the rule. Surgery however, cannot depend upon possibilities or probabilities but has to be based upon certainty and theoretical exactness; therefore we are indebted to Lorenz for his having done away with the nebulous conceptions that were brought about by Paci's method.

It seems rather strange that Davis, who is quoted by Ridlon finds no difference between the Italian and Viennese method except the violence of the latter. He says: "Outside of the use of excessive violence, extension, increasing the abduction and tearing of the muscles, the method remains one of circumduction like Paci's." It is hard to understand, how anyone who saw Lorenz operate and who had at hand Paci's publication, as I must presume Davis had, can say this. It seems to me that Davis in his criticism quite lost sight of the different phases of the operations and overlooked the great merit of Lorenz who based his treatment on an anatomical basis, and who taught us how to secure stability.

What other surgeons think of the "violence" may be seen from a statement of an authority like Brun in Paris. He says:

Conforming to Lorenz' manner of operating, i. e., working with force, I am frank to say even with brutality, I got a perfect result in a girl recommended to me by my colleague and friend, Mr. Felicet. The perfection of the result is evidenced not only by the disappearance of the limping but also by the X-Ray picture, which I demonstrate (Seance de la soc. de chir. 15 III, 189[illegible] Paris). In five cases Brun identified the r[illegible] sult of the anatomical reduction of the dislocated femur-head by the X-Ray pictur[illegible] taken immediately after the operation.

The report of Brun is very interesting b[illegible] cause it emphasizes as very important for ob[illegible] taining a good result the very violence whic[illegible] Davis considers unnecessary and injurious. In some cases of course violence can be dispensed with, that is in cases where the muscles are atonic and the anatomical condition[illegible] very favorable. In other cases however, where poor stability necessitates the enlarging of the anterior part of the capsule o[illegible] where an intended suprapubic position has t[illegible] be worked out, I can hardly see any way t[illegible] succeed without force.

But these two methods differ not only in theory but in practice as well i. e., as far as the results are concerned.

Many authorities can be cited for this. Especially interesting from this point of view is a statement of Ghillini (Revue d'orth[illegible] Mars 1898) who actually reports of three cases operated upon by him after Paci without success and fourteen cases successfully operated upon after the Lorenz method. This testimony given by a compatriot of Paci deserves special emphasis. Another report of the "efficiency" of Paci's method by Phocas (Revue d'orthop, 1892, Fevrier) says: Neither at Torino nor at Milano could they show a child cured by Paci's method.

About the claim of Schede that he was the first to emphasize the importance of the functional weight-bearing for the development of the acetabulum, it may be stated that his publication (Congress der deutschen Gesellsch. f. chir, Berlin 1894) on this subject did not show clearly the fact that in his abduction splint the limb had to bear the weight of the body. I may be allowed to quote a few lines of one of his publications; he says:

"In the cases of four children who were a little older, girls of eight and nine years, a satisfactory result was obtained in three by wearing the abduction splint during five and six years—in these cases care was taken to keep the bulk of the body weight from

the joint by means of a pelvic support attached to the splint.

This passage influenced the opinion of some orthopedic surgeons such as Lorenz, v. Mikulicz, Hoffa and Delanglade to describe the Schede abduction splint as an apparatus taking the weight of the body from the leg. Everyone must agree that after this description neither Lorenz nor Delanglade nor Hoffa nor v. Mikulicz can be blamed for having misunderstood the aim of this appliance. Although this may be of little importance, I wish to call attention to this fact, as Lorenz acted in bona fide claiming that he was the first to introduce into the therapy the principle of "weight-bearing."

As to the terminology I wish to make a few remarks, as there is some obscurity in the term, "transposition." Ridlon mentions this term several times and in the discussion of his paper several of the prominent orthopedic men in New York as Gibney, Townsend, Whitman likewise use it. From this I learn that the expression "transposition" is used among my American colleagues for denominating different positions, which as to prognosis as well as to etiology are entirely different; they have in common the only fact that they are not complete anatomic replacements.

The term transposition is largely used in Germany and France and is to be found in many publications; it always means that the head of the femur has been brought from the posterior surface of the pelvis to the anterior surface of the same. It is used by Ridlon and the above quoted surgeons in this general sense; a number of other authors however understand by this term only a special position of the head on the front of the pelvis i. e. the position where the head stands below the anterior superior spine. In Ridlon's paper the term "transposition" seemingly signifies the position of the head above the socket ("Supracotyloid position") as well as the position, where the head stands before the socket in the direction of the medial line more or less in the level of the Y-shaped cartilege ("Ridlons anterior transposition.) I think it is more advantageous to do away with the term "transposition" and to characterize the positions by their anatomical characters, thus calling them subspinal or superacotyloid position and pubical or supera-pubical position, as in the latter case the head is leaning against the horizontal branch of the pubic bone or in some cases even resting upon it. The first position might also be called less nicely anterior superior redislocation.

Both positions however are to be distinguished because of their difference regarding prognosis, etiology and treatment; therefore different terms should be applied. In the paper which I published with Dr. D. D. Ashley in New York in the New York Med. Journal, Sept. 10, 1904, we dealt with these two positions very carefully and the subject seems to me important enough to quote the corresponding paragraphs.

"While division 4." quite frequently will give an irreproachable anatomical result, there cannot be an anatomical result in divisions 5 and 6, while the functional results in division 5 in almost all cases, are entirely satisfactory.

Group B-4. The head is located on the horizontal branch of the pubic bone (supra-pubic position.)

The diagnosis of this position can be made unmistakably by mere inspection. The head of the femur protrudes from the groin as a prominence about the size of an English walnut.

Palpation will solve any possible doubt. Since this prominence is hard, smooth, can be grasped with the fingers, and participates in all the movements of the femur, noticeably of rotations. The exact location of the prominence varies within narrow limits, depending upon how far the head had proceeded upon the pubic bone. Generally speaking, it will always be found somewhat in front and above the acetabulum.

We can distinguish two types of the supra pubic position or dislocation. One of them is due to the intentional dislocation of the head upon the horizontal branch of the pubic bone. The second type is the result of an accidental dislocation of this kind. The intended supra-pubic dislocation is a procedure which is called by Lorenz "the placing in

store of the head." In case it should be absolutely impossible to find any kind of fixation in the region of the acetabulum, we stretch and distend, by means of the femoral head, the anterior part of the capsule, to such an extent that the head slides up on to the pubic bone.

It is evident that this position completely excludes a sliding backward of the head, and it is fixed in this position by a cast which remains for six months. In this way we do not accomplish a reposition in a strict sense, but we succeed in securing a preparatory step for the reposition, by having removed the muscular and capsular resistance, and by inducing the shrinkage of the pelvitrochanteric muscles and the posterior wall of the capsule.

By this shrinkage, the last mentioned textures are used for the fixation of the femoral head, which was previously without possible fixation.

The unintentional supra-pubic dislocation may frequently be seen after removing the first cast, if during the operation the anterior capsule was stretched too far, and if upon the occasion of the application of the cast, extreme abduction with superextension was adopted. Superextension, especially, enhances the liability of this dislocation, which will appear under the influence of the pressure of the cast, and as a consequence of the tension of the muscles.

This abnormal position invariably calls for the reposition of the head within the acetabulum, and for fixation by means of a second cast. This secondary reposition Lorenz calls "depression of the head." The thigh in the primary position of maximal abduction and rectangular flexion is given slight extension, with abduction and simultaneous inward rotation. The head disappears from the groin. If the reposition was a success, we fix the member in the position which shows the least danger for the stability of the joint, namely, abduction about 45°, flexion about 30°, and neutral rotation. It is rather hard to formulate general rules, as each case must be individualized, to secure the desired depression without jeopardizing the anterior position, since it is evident that if we adduct and flex too far, and there is a shallow acetabulum,, we may have a posterior luxation. Hence we should never omit to make examinations on the second, third and fourth days, to ascertain the position of the head. If it has resumed the supra-pubic position, a new cast should be applied under reduced abduction and increased flexion. Should the head be found traveling backward over the acetabulum, the abduction must be increased, and the flexion approach the primary position.

All of these casts call for a thorough and reliable technique, since they must fix the pelvis and thigh. The beginner will not be able to avoid failures on this score. These casts should be worn from two to six months, during which time the patient walks around, aided by insoles, the height of which must be adjusted according to the position of the limb.

It is expedient to anesthetize patients for a short time, in order to more satisfactorily perform the depression. A few drops of chloroform, or the Aetherrasch narcosis, are sufficient. If narcosis is dispensed with, thoroughly reliable assistance will be absolutely necessary, and the operator must be thoroughly conversant with the method of procedure.

When the proper degree of stability has been obtained, the cast is removed, and the typical after-treatment carried out, furnishing uniformly good results.

Group B-5. The head is located above the acetabulum, underneath the anterior superior spine.

This position is called by some few authors, a transposition, but the name sub-spinal seems to be more appropriate to designate this position, which is quite often found to have developed following a good anatomical reposition.

The cause of the non-retention of the head within the acetabulum lies either with unfavorable anatomical conditions, or with shortcomings in the applied technique. It is a fact that inexperienced men will always produce a large percentage of sub-spinal positions. The most frequent mistakes are insufficient fixation in the cast, and insufficient

stretching of the anterior wall of the capsule; or a forced transposition, after having failed to reduce completely. It is quite often possible to predict a sub-spinal position at the time of the operation, generally in patients beyond the age limit, where the head has become markedly deformed. a. s. o."

The treatment of the suprapubical positions is here explained and in the main features the descriptions exactly correspond with the explanation which Lorenz gives in his text book. The greatest stress has to be laid on the fact, that the supra-pubical positions require subsequent interferences, a fact which apparently was not recognized (see below page 1) by Ridlon. Ridlon's cases ??, ?9, 83, 88 and others belong to this group. As Ridlon as is shown below does not believe in the possibility of securing a secondary replacement and nothing has been mentioned about this subject in the history of the cases, I think my view given above is right.

The secondary replacement of the head in such cases not only corrects the extreme ectorotation of the leg which appears after the extremely abducted leg is brought down, but combined with suitable after treatment gives mostly an anatomical result. Therefore it is not permitted to add cases such as above quoted to the class where anatomical results have not been obtained. Such a case cannot be discussed as long as the most important part of its after treatment is wanting.

Far from regarding the suprapubical positions as not desirable I would say that in some case where the stability is extremely poor they are a therapeutic measure of the greatest value.

About the etiology of the supra-pubical or pubic positions Ridlon says: "When anterior transposition (i. e. pubic position) results it appears to be due to too freely tearing the tissues in front of the joint; when these are healed they are not sufficiently strong to retain the head in the acetabulum if the head is again replaced." By "tearing the soft tissues" he can only mean the adductors, a fact, which he explains later on saying (p. 1068 l. 6) "if one tears them (the adductors) too freely anterior transposition may be the result."

The tearing of the adductor muscles by no means plays the part in this question as Ridlon would lead us to think. The resistance of the adductors has to be considered only so far as it has to be removed, whenever ultraphysiological abduction has to be performed. For the production of the pubical positions however, only the condition of the capsule comes into consideration and especially the enlargement (artificial or natural) of the anterior part of it. This is to be seen very clearly if such a supra-pubical position is intentionally produced because of the very poor stability of the joint. In such a case even if the action of the adductors is completely annihilated and even if extreme abduction is applied the head does not change into the pubical position. Only if the anterior wall of the capsule is artificially enlarged and in extreme cases its insertion with a part of the periostium is levered off, the head does appear in the said position. The head is placed then immediately underneath the artery and in some cases inside of the same. In case of accidental production of the pubical positions it is justified to make the same condition responsible which is pointed out above in the analysis of the intended pubical positions. The elongation and enlargement of the anterior part of the capsule was an artificial product in those cases: in the class with which I am dealing now the same conditions are present, but preformed by nature.

In such cases where unfavorable development of the socket necessitates a rather extreme position of abduction, three conditions may combine for the production of an unintended supra-pubical position, namely, the extreme abduction, shallowness of the acetabulum and the spaciousness of the capsule. The head bellies out the capsule towards the medial line of the body by and by placing itself in this recessus and appearing in the same position in which it is found after an intended "storing of the head."

As the treatment has been mentioned already, I have nothing to add.

Dr. Ridlon however is of another opinion about this subject: he says: "Lorenz teach-

ings have led me to assume that he expects in some instances to obtain a perfect anatomic replacement in some cases where the femoral head is in anterior transposition or apposition, when the splint is removed. I doubt very much if this will be found to be possible. At any rate it has not been demonstrated nor do I believe that any of supracotyloid displacements will by any bloodless procedure be made perfect replacements." That a pubical or superpubical position (Ridlon's anterior transposition) *may be changed into an anatomical reposition is shown by picture* Nr. 3. Ridlon's case 12, which I will discuss later on. Concerning the reduction of sub-spinal or supracotyloid positions into anatomic replacements Lorenz has never made any remark, nor did he ever claim that he did it. I personally have the conviction, that under certain circumstances it is possible to replace anatomically a case of subspinal position; at least a number of cases upon whom I operated since October, 1903, in order to improve the subspinal position show a perfect anatomical replacement as well by clinical as by X-Ray examination (May, 1904). But as I think that this question has not been sufficiently investigated I do not wish to discuss it further now.

It is only left to say a few more words of the statistics given by Ridlon. I do not wish to discuss whether it was necessary to add to the statistics given by Ridlon, Group No. 1, where the cases did not get any treatment or Group No. 2, which signifies Ridlon's first attempts and Group No. 4 which includes cases that cannot be regarded as finished for a long time. But even the cases in group 3 cannot be regarded as free from any objection and suitable for drawing reliable conclusions.

Regarding cases 12, 16 and 33 which were under my care it would have been in keeping for Dr. Ridlon to confess that he saw case 16 only once and that a few weeks after the operation and that he was not able to examine the cases 33 and 12 after the removal of the casts at all. Therefore his report about the results in this case has only a problematic value and contains little truth. In case 33 Ridlon's report reads as follows: Case 33. Female, age 4 years; both hips: shortening 1¼ inches. Operated on Dec. 30, 1900. Right hip released during the second month while in the plaster splint, and treatment of this hip was abandoned until a good result should be had on the left side. The plaster splint was removed from the left hip at the end of seven months, and replacement was apparently perfect. During the following three months the femoral head came forward far enough to be felt in the groin. Dr. Fenger was of the opinion that it was an anterior transposition, and such I have reported it. The child walked on this limb for eighteen months without any shortening resulting, and when Professor Lorenz operated on the right hip on Oct. 12, 1902, he examined the left hip and said: "That hip is good enough for any one." He did not say whether he considered it a perfect replacement or an anterior transposition.

When Professor Lorenz removed the splint from the hip he had operated on (the right) the limb was found to be shorter than the one I had operated on, but the head appeared to be in place. After about three weeks of daily massage and manipulation by Professor Lorenz an anesthetic was again given and the limb again stretched and manipulated, and again put in a plaster splint. The result has been stated by Professor Lorenz to be an anterior transposition, or "apposition," less good than the result in Case 16. The result is: Left side operated upon by Dr. Ridlon; subspinal position (anterior superior redislocation;) Right side operated upon by Dr. Lorenz: anatomical replacement combined with some rigidity as is very often the case after operations in older children. It is the object of the after treatment to do away with this rigidity, which always disappears within a shorter or longer time. The shortening of the right limb after the removal of the casts cited by Ridlon, as well as the fact that Lorenz called the result an apposition less good than the result in Case 16 is but a fabulous story.

Ridlon's report reads; Female; age 4 years; left hip; shortening ¾ of an inch. Operated on March 21, 1898. At the end of 13 months, when she passed from my care, head was apparently in place; there was

inch shortening, and she walked with scarcely a limp. During the following winter she was treated by an osteopath for three months. I was permitted to examine the child 19 months after she passed from my care. There was a ⅝ inch shortening and the head could be felt above the acetabulum. The parents, trusting to the assurances of the osteopath that the hip was in place, refused to have a skiagram made and refused to believe that relapse had occurred. Two years later Professor Lorenz operated. The replacement was effected with ease for a seven-year-old child, as easily as most primary replacements in children of four. The acetabulum appeared to be good; and a perfect replacement was prognosticated as the ultimate result. When the plaster splint was removed some eight months later Professor Lorenz told the child's father that the head was in anterior transposition. This case illustrates the difficulty of prognosticating the final result at the time of operation.

Dr. Ridlon's Case No. 16. I am able to demonstrate by two X-Ray pictures No. 1 having been taken before the operation performed by Lorenz about ten months ago, and No. 2 having been taken beginning of May, 1904. No. 1 is a specific picture of a congenital hip dislocation showing it on the left side; as No. 1 shows some very interesting details, I may be allowed to give a few notes in reference to it. The head is slightly deformed, a little twisted forward the socket rather spacious although shallow in picture. The superior bony rim is very markedly developed. As however, the stability, appeared to be very poor during the operation, it is very probable that the cavity of the socket was filled up with cartilaginous layers. Picture No. 2 shows the head not quite in the center of the socket, but in the socket, that is entirely sheltered by the superior part of it. The center of the head because of this reason and because of its smallness stands a little higher than the Y-shaped cartilage (ca ½ c.m. higher). Not only is the head sheltered by the socket, but its upper part seems to be laterally surrounded by a bone—shadow, probably the newly produced superior and exterior rim.

This is a flagrant proof for the possibility of the socket developing and adapting itself. This result can only be called a very good one especially in consideration of the fact that the child was operated upon before, with the result shown in picture No. 1—i. e. a complete posterior dislocation,—and in consideration of the age which was very close to the limits for this operation.

The clinical examination (1904) shows the great trochanter a few milli-meters (5 mill) above the Nelaton line; the head is submerged in the groin, the joint itself is very firm and solid against push from below; there is full motion leaving only a slight degree of abduction, which will disappear in time. The result is expected to be a permanent one at any rate as nearly two years have elapsed since the operation, and over one year since the removal of the cast. How Ridlon is justified in representing the case as an "anterior transposition" (pubical position) may be judged upon by the readers.

I come now to case 12. Ridlon's report says: Female, age 4 years; right hip; shortening 1 inch. Operated on September 28, 1897. The plaster splint was worn nine months. A year later, June 14, 1899, *the hip was apparently in place;* there was a ⅛-inch shortening, and the patient walked without a limp. Three years later Dr. T. A. Davis presented the case to Professor Lorenz, and he operated. Some eight months later Dr. Davis removed the splint put on by Lorenz, and the femoral head at once slipped from its resting place in or near the acetabulum. Dr. Davis replaced the head and put on another plaster splint. The present condition is unknown; the parents refuse to permit an examination or a skiagram. The child walks with a limp and probably has a supracotyloid dislocation. Here I would correct the remark of Dr. Ridlon, that the parents refused to permit an examination or a skiagram. The parents did not refuse but referred Dr. Ridlon to me since the child was under my care. I should have been delighted if Dr. Ridlon would have called on me for an examination of this child. When the child came under my care she was wearing a cast made by Dr. T. A. Davis. After removal of this cast it was seen that the ab-

duction was corrected half way, but that the "reduced" head (as stated by Ridlon) was still on the horizontal branch of the pubic bone.

I was sorry to tell the parents that a secondary replacement and another cast were necessary. The secondary replacement was performed without anesthesia and has held the head in its normal place ever since.

X-Ray Picture No. 3 taken 9th of May, 1904, shows the conditions as they are at present. The head (left side) is a little irregularly shaped and a little smaller than its socket, and the light semi-circular area between head and socket shows nearly normal conditions. Such a result can be called an anatomical one in the fullest sense of the word.

A clinical examination shows the head submerged in the groin and allowing perfect motion; the outward rotation of the leg is corrected, and the child walks without any limping.

I hope that I have been able to show by this X-Ray picture that Dr. Ridlon's assumption, that the child has probably a supercotyloid dislocation lacks foundation, and likewise it is quite evident in spite of Dr. Ridlon's opinion to the contrary that pubic positions can be changed into anatomical replacements. As I was able to recognize in Dr. Ridlon's statistics only three patients: cases 12, 16 and 33, I am not able to go into the details of the other cases separately but may discuss them only as a whole from the standpoint of the statistics.

Speaking in a general way, I cannot approve of Dr. Ridlon's method of taking statistics. Firstly, I scarcely believe that enough time has elapsed to warrant to regard cases operated upon in October, 1902 as finished. For the purpose of comparison, I would say that in Vienna I have had the opportunity to observe and to direct the subsequent treatment of over 500 cases and that only a few of them required as much as a year of after-treatment. But apart from this we cannot regard all cases of hip dislocation as equivalent for statistical purposes and especially not those that have been operated upon by Lorenz. It is to be remembered as Ridlon loyally states that Lorenz operated always before a large audience and although the cases have been selected, it happened that several cases not suitable for a reposition in one seance (without preparatory treatment) were brought into the operating room already etherized, so that their operation could not very well be forgone.

Another disadvantage was that half of the children were above the age-limit, that is, seven years for unilateral cases. As in older children subspinal positions are more frequent owing to the anatomical changes of the acetubulum and the head of the femur a larger per centage of subspinal position was to be expected.

A third point finally which is not to be overlooked is that several children (3 out of 18) were operated upon before, a fact which always interferes more or less with the result of a second operation.

By these facts of course, only the proportion between anatomical results and subspinal positions is affected, as real posterior re-dislocations ought not to be seen after the operation—good care provided. They are to be seen during the after-treatment only when gross mistakes have occurred.

With reference to this, Ridlon does not report about any posterior re-dislocation; if we too, as he does, call subspinal positions satfactory results, Lorenz' work has been more than successful in the cases cited. But no particulars of the proportion between anatomical results and subspinal positions can be gleaned from Ridlon's statistics.

The very important proportion between true anatomical reposition and subspinal position can only be derived from statistics taken from intact cases that have been operated upon within the age limits and that have received a suitable after treatment. The method is unfortunately limited regarding the age and if children 12 or 13 years old can successfully be operated upon, it is an exception. The frequency of this exception proves the great value of the method but must not lead us to expect a regular result, say 50% of anatomical results. In these cases it is quite obvious that a method based upon

the development and adapting of the socket by the presence of the head, is fully able to show its efficiency in cases, where socket and femur are in a much more advanced stage of development respectively malformation.

What statistics, with consideration of the age limits tell, may be seen from a statistic of E. Mueller in Stuttgart (Deutsche Zeitschr. f. orth. Chir., 1903,) who reports twenty-eight anatomical replacements in forty cases (age between 1 and 8 years). Joachimsthal in Berlin who reports 17 anatomical replacements among twenty-three cases (age between 1 and 7) and Drehmann, Breslau who reports forty-three anatomical results in fifty-six cases. Considering these facts the regretful strain of Ridlon "over the mislead public opinion in spite of the statements of honest and skillful operators," does not seem to be justifiable.

How much more would he have been mourning if Lorenz had made the percentage of anatomical cures 70% or more as did the above quoted surgeons.

The statistics given by Lorenz are not at all too optimistic in comparison with those given above and no one can take exceptions to them on the ground that by his statements the public opinion was mislead. If the treatment of cases rather unsuitable for this operation or the experimenting of a surgeon with this method do not give the best results possible, we cannot blame the method proper. In such cases some results may be gained although not the best ones; it might be that in such cases even Ridlon's quoted 10% of anatomical replacements would be too large a proportion.

This mistake was made in Europe in the same way when Lorenz advocated his method first and the opposition there was based upon the same reasons, until they learned that only a certain amount of experience and close regard of all apparently insignificant details especially in the after treatment are paramount for accomplishing good results.

If any objection can be made to Lorenz statements it lies only in the fact that he declared "the method can be practiced in the smallest village." This is true so far as instruments and preparations are concerned, but it stands to reason that the country physician, who sees one single case in years is not familiar enough with the different steps of the operation, with technique and especially with the after treatment.

These facts explain also Ridlon's reference to the disappointment of other surgeons over not obtaining the claimed percentage of anatomical repositions.

True the operation can be performed anywhere and by anyone, but it will show its full efficiency in practice and especially in regard to the complete restitution of the joint only in the hands of the specialist, the orthopedic surgeon.

## ILLINOIS BIRTHS REPORTED.

**Showing in the Returns to State Board of Health.**

During the six months ending June 30, 1904, physicians reported to the secretary of the state board of health, 42,463 births in the state of Illinois. There were considerably more boy babies than girls, 22,552 of the former and 19,814 of the latter. The sex of 102 was not specified in the reports.

There were 41,895 white babies and 573 colored. In 327 instances twins were born and in eleven cases triplets.

The county reporting the largest number of births was Cook county while Peoria gave the next largest returns. In Putnam county but sixty births were reported during the six months.

Triplets were born in Clinton, Cook, Knox, Livingston, Logan, Johnson, Washington and White counties.

The effort made by the state board of health to secure complete returns of births in the state is producing better results than ever before, the returns during the first half of 1904 being better than in a similar period at any time in the history of the board.

**Dr. Geo. E. Krieger,** formerly of Chicago, who departed for Germany with his son in 1903, has appealed to the Appelate Court of Illinois the suit for divorce brought by his wife, Emily Bert Krieger. Judge Gibbons recently declined to set aside the decree granted Mrs. Krieger in May, 1904.

**The Green County Medical Society** at its meeting at Carrollton, selected the following officers:

President, Dr. H. W. Chapman, Whitehall; first vice president, Dr. F. H. Russell, Eldred; second vice president, Dr. James Squire, Carrollton; secretary and treasurer, Dr. H. A. Chapin, Whitehall; censors, Dr. Howard Burnes and Dr. E. S. Gooch, of Carrollton; Dr. F. H. Russell, of Eldred.

The next meeting of the society will be held in Whitehall in December.

# SYMPOSIUM ON CANCER.

## ETIOLOGY AND PATHOLOGY OF CARCINOMA, WITH ESPECIAL REFERENCE TO EPITHELIAL METAPLASIA.

BY GUSTAV FUTTERER, M. D., CHICAGO.

*Mr. President and Gentlemen of the Surgical Section of the Illinois State Medical Society:*

Thanking you most heartily for your invitation to address your section on the subject of carcinoma, and assuring you of my deep appreciation of this honor, I must ask your forbearance if I do not treat the subject from a standpoint as broad and general as may have been expected.

You all know, that we define carcinoma as a malignant growth, which originates from the epithelial apparatus of the body. It has an alveolar structure, its framework consists of products of the intermediary apparatus of nutrition, connective tissue and blood-vessels and the meshes of its framework, the alveoli are filled with the products of multiplication of the epithelial cells, from which the primary carcinoma took its origin. The growth of the intermediary apparatus of nutrition and that of the epithelial part of the new formation go more or less hand in hand and changes in structure of the carcinoma and secondary degenerations occur as the development of the former or of that of the latter becomes more pronounced. The very first cause of this excessive growth is not known and our lack of knowledge may be explained by the fact, that we can never observe the formation of a carcinoma under the microscope, but that we always, no matter how recent its development may be, find it ready made. While the careful study of very young carcinoma has given us some very valuable information, it has so far thrown no light on the direct cause of carcinoma. Following the formation of the primary tumor according to its character, comes at once, or after many, even ten or fifteen years, the development of metastases, of which there may be only one, or a great many, and they may be near to the primary tumor or very distant. Whenever they may come and wherever they may be, their essential part is made up from epithelial derivates of the primary tumor, which have been carried into a distant organ, multiplying there. The cells of the organ invaded do not participate in the building up of the metastases, their interstitial apparatus only furnishes the framework, just the same as it is furnished by the organ in which the primary carcinoma originates. The growth of the epithelial elements is most essential in carcinoma, but a more or less of it, as compared with the development of the framework, only brings variations, without changing the true character of a growth. Outside of furnishing the framework and the nutrition, the organs invaded never participate in the development of metastasis. If, for instance, a carcinoma of the stomach causes a metastasis in the liver, we may observe considerable karyokinesis of the liver cells around the metastatic nodule, but the liver cells do not participate in the least, in the development of the metastasis, and so; to use the same example, the metastases of a carcinoma of the stomach no matter where they may occur in the body represent a carcinoma of the stomach in form and function of their cells. I have seen a carcinoma of the labia majora which had made only one metastasis in the visceral pericardium and myocardium, where its cells produced eleidin. In a primary carcinoma of the liver which I have observed, its cells produced bile and in a primary carcinoma of the thyroid gland particles of the primary growth had grown into the trachea, fallen into the bronchial tubes of the lower lobe of the right lung and there they had multiplied and produced enormous quantities of colloid. There are more similar observations on record and we may take it for granted, that the cells of the metastases keep up the physiological activity of the cells from which the primary growth takes it origin, subject to local conditions.

*Read at the 54th Annual Meeting, May 17, 1904.

The primary growth and the metastases, together, produce the last act of the tragedy, cachexia. Pains, worry, lack of sleep, local effects of the growth, the amount of nutrition absorbed by the primary tumor and its metastases, and the resulting anemia and atrophy of organs bring on the only too well known clinical picture of cachexia, but every observing physician knows that many of those carcinomatous cachexias, have a stamp of their own, that the cachexia from a carcinoma of the stomach is quite different from that caused by a carcinoma of the liver, or any other organ. Let me call your attention to the fact, that such differences between the various forms of cachexia are to a great extent caused by the over-production and absorption of the physiological products of the cells of the primary growths and their metastases, and their more or less destructive action on the blood. In some cases there is very little cachexia in others it is very pronounced.

It is very desirable that the different forms of cachexia and their causes should be well studied, as such studies might bring out knowledge, which would prove of diagnostic value.

As to the aetiology of carcinoma, we have to consider different theories.

Thiersch, thinks that the origin of carcinoma can be explained by a senile lessening of resistance of the connective tissue at a time when the epithelial apparatus is still very active in its growth. But then there should be more cases of carcinoma and also more cases of multiple carcinomata. This theory is unsatisfactory because it does not give the last cause for the ingrowth of the epithelium.

Cohnheim's theory, concerning the development of carcinoma from aberrent germinal deposits, and the theory of Ribbert, who believes that a sequestration of normal epithelial cells by connective tissue leads to a formation of carcinoma, have not been accepted.

The opinion that parasites are the cause of carcinoma has many enthusiastic defenders although the reasons for the same are even less numerous and less convincing than those which can be brought forward in favor of the above mentioned theories. Of the many reasons which can be advanced against parasites as a causative factor of carcinoma, I shall only bring one, which I consider quite sufficient. When cells from a primary carcinoma, let us again say, a primary carcinoma of the stomach, are carried away into a distant organ, for instance the liver, and form a metastasis, then the metastasis proper as has been mentioned already, develops through continued division and consequent multiplication of the cells from the carcinoma of the stomach, while the framework of the metastasis, connective tissue and blood-vessels are furnished by the interstitial apparatus of the organ invaded. As has been mentioned already metastasis from a carcinoma of the stomach always represents a carcinoma of the stomach, no matter in what organ or how distant from the stomach it may develop and the cells of the organ invaded, while they may show some karyokinesis, never participate in the building up of the metastasis. That would be different if the cell embolisms contained parasites for they would infect the organs and in our example a carcinoma of the liver would develop with the metastases from the primary growth, or we would have to stipulate the necessity of the existence of especial parasites for the carcinomata of the different organs which would be rather far fetched.

Virchow has laid great stress on the importance of mechanical irritation and my own observations and reflections make it appear that the causal role which they play is of the greatest importance, particularly mechanical friction of a higher grade. But this alone will not do, there must be disorders of circulation, as they result from friction, and the latter must continue and the epithelial cells must undergo certain changes, which suddenly bring on their tendency to grow downward into the deeper tissues in spite of all obstacles which present themselves. In the fall of 1895 I observed a combination of carcinoma with ulcer of the stomach. A deep ulcer was found just before the pylorus and a carcinoma, which had also made a number of metastases, had

developed on the lower or pyloric edge of the ulcer, while its upper edge was still practically free from carcinoma. Both the upper and the lower edge of the ulcer had been exposed to constant friction by the stomach contents, but this friction was of quite a different degree on both margins, as the food slipped easily over the smooth upper edge, while the undermined lower or pyloric edge was subject to much more friction by the food, that had to be forced out of the funnel of the ulcer, into the pylorus. After the observation stated, I saw six more such cases in rather quick succession, and then commenced to experiment, trying to produce gastric ulcers in animals and so create the same conditions favorable to the formation of gastric carcinoma, as they exist in the stomach of man, when ulcer is present.

I shall not go into detail about this, but simply refer to a publication of mine which appeared in the Journal of the American Medical Association, March 15, 1902. So far my results in following up this thought have been so encouraging, that my belief is stronger than ever, and I shall acquaint you here with a few of them.

It is well known how close a relationship exists, between epithelial metaplasia and carcinoma, and as in a series of experiments on ninety-four rabbits, I was able, to produce epithelial metaplasia in the stomach, three times, I wish to report those findings. A review of the cases of epithelial metaplasia as they have been observed in man, is very interesting and conclusions may be drawn from it by careful consideration of all details which have not so far found expression, but our time being limited, it shall only be mentioned in a cursory manner, that epithelial metaplasias have been observed in the nose and its accessory cavities, in the ear, in the adenoidal ring of the pharynx, in the larynx, trachea, bronchial tubes and lungs, in the gall bladder, in the urinary tract, the testicles and in the uterus. None have been described to occur in the gastro-intestinal tract, except a physiological metaplasia with hornifications in low mammalia like Echidna, Halmaturus, Manis and Bradypus.

Number of animals operated on, 94; number of deaths, 91; number of deaths during 1st week after operation, 65; post mortems, 32; ulcers, 22.

I wish to report here four cases of metaplasia in the stomach, of which three observations were made in the course of the above mentioned series of experiments, while the fourth case comes from a former series of which the data are not at hand.

Case I.

White rabbit; sex, female; weight, three and one-half pounds; haemoglobin, 75; operation, January 8, 1904. January 23d, haemoglobin, 60%; weight, 2½ pounds. January 30th, haemoglobin, 50%; weight, 2⅛ pounds. Loss of weight from January 8th, to January 30th, 1⅜ pounds, which is almost one-third of the animals weight. The rabbit died on February 1st, and it was found that the artificial defect had been covered again by mucous membrane, which was thickened and rather hardened in consistency, particularly in its middle portion. The microscopical examination showed considerable thickening of the mucous membrane in the central part of the healed defect, with complete regeneration of the same. Here, where macroscopically a small shallow slit could be seen, it was found to contain some vegetable fibers and on one side a strong peg of squamous epithelial cells was observed to originate from the epithelial apparatus of the mucous membrane from where it grew but little upward, just reaching the surface of the mucous membrane, while it had grown downward with great force, forming three side branches. The peg and its branches had not broken through the muscularis mucosae anywhere, but they had pushed this muscular sheet downward through the hypertrophic muscularis, almost reaching the serosa. A lumen could be seen in most parts of the peg, but its was of microscopical size and the arrangement of the squamous cells which formed the peg was so similar to the structure of the skin, that but slight differences existed. There were well formed papillae, a characteristic stratum Malpighii with considerable karyokinesis being noticeable in its basal layers.

a typical stratum granulosum, indications of a stratum lucidum and a perfect stratum corneum, that showed hornification in specimens stained with Gram's method.

A good deal of keratohyalin was present. In figure 1, which represents a microphotograph of the epithelial peg and its nearest surroundings, that is marked "Rad.," radix, root of the peg, it can plainly be seen, that the transformation of the cylindrical epithelial cells of the glands of the mucosa is in progress. This, I think is the part where the peg originated and the glands nearest to those in transformation, show plain signs of also becoming involved. Figure 2, demonstrates that the glands have become elongated and dilated and that their epithelial cells have become larger, higher, and their nuclei richer in chromatin, changes, which as will be seen from Figure 4, precede the final change from the cylindrical to squamous epithelium. This change occurs very suddenly, without an intermediate stage, the enlarged cylindrical cells forming the basal layer of the stratum malpighii from which then the other strata develop. It is to be remarked, that while there is considerable increase of chromatin in the cylindrical cells, it is only when the development of a stratum malpighii is inaugurated, that very numerous karyokineses appear.

After what has been said, it is at once clear that we have a genuine metaplasia, that cylindrical epithelial cells have been transformed into squamous cells, that a formation which is considered as a characteristic product of the ectoderm, has developed from parts of the entoderm, and that this metaplasia is due to mechanical causes. I have no doubt, as the part where it occurred was the only one prominent in the stomach and consequently exposed to friction. Friction alone cannot be the cause of metaplasia, but friction causing disorders of circulation and this plus continued friction is in my opinion the cause of those more deep-seated forms of epithelial metaplasia which are so prone to develop into carcinoma early or which probably are carcinoma from the very beginning.

If we review the cases of metaplasia reported in literature our belief in mechanical causes is very much strengthened, and if we consider that in certain low mammalia who break up their hard food in the stomach, because they have no teeth or only rudimentary teeth, squamous epithelium and hornification are found in the stomach, down to the pylorus, then even the most skeptical must be convinced.

A superficial metaplasia is found in places and under conditions which almost preclude mechanical influences, I refer to such as occur in the nose, the frontal sinus, the antrum of Highmore and in the ear. Oedemas are supposed to give rise to such superficial metaplasias in the antrum and chronic inflammation has been stated to be a factor in the nose and ear. Metaplastic changes of epithelium also occur in the vicinity of tubercular ulcers. In some instances chemicals may cause such superficial metaplasias, for instance crude pyroligneus acid.

### Case II.

Brown rabbit; female; weight and haemoglobin have not been recorded. Operated on January 7, 1904.

Jan. 23d, haemoglobin 45%, weight 3¼ pounds.

Jan. 30th, haemoglobin 38%, weight 3⅛ pounds.

Feb. 6th, haemoglobin 45%, weight 3⅛ pounds.

Feb. 13th, haemoglobin 38%, weight 3⅛ pounds.

From January 23rd to February 13th the haemoglobin went down from 45% to 38% and ⅛ pound was lost in weight. The animal died February 19th, and as the weight had not been taken during the last six days before death occurred, no statement regarding any probable loss during that time can be made.

An infection of the right hand prevented me from making the post mortem examination myself and when I received the stomach I noticed a round mass on its outside, on the posterior wall near the greater curvature, which was 7 mm. long and 4 mm. in diameter. It had been severed from its continuation, the ending place of which is unknown, by a cut and its cross section showed,

that it was filled with a whitish mass. What there was left of it, was cut off closely to the stomach, in order to prepare cross sections for microscopical observation, but this piece was lost. Corresponding to the insertion of the round mass into the wall of the stomach, there was found in the mucosa thickening and hardening and microscopically another peg of squamous epithelial cells, which as figure 3 shows, had also grown downward, pushing the muscularis mucosa before it, clear through the muscularis and to the outside of the stomach, where the mass mentioned above was found. The structure of the skin was not nearly so well reproduced as in case I, but the formation of papillae and that of the stratum malpighii was plain enough (Fig. 3), to leave no doubt as to its real character.

Figure 4 gives full proof as to the true character of the metaplasia.

Case III is so much like Case I, that a description would mean a mere repetition of what has been said, and Case IV is identical with Case II. The results of my investigations allow the following conclusions:

(1) Epithelial metaplasia can be experimentally produced, by increased friction.

(2) It can be proven, that the metaplasias observed, did not originate from a germinal deposit as they were found in places where mucosa plus muscularis mucosae had been removed. If there had been a germinal deposit, it would also have been removed and the epithelial pegs could not have developed from a germinal deposit at the edge of the defect, as they were perfectly isolated and had no connection with other similar formations.

(3) The transformation was perfect.

(4) Figure 2, and particularly figure 5, leave no doubt as to a direct transformation of cylindrical epithelial cells to squamous cells, without an intermediary stage and the findings in Case II, as figure 4 represents, alone are sufficient proof of the genuine character of the metaplasia.

(5) As it is possible to exclude the origin from a germinal deposit, light is thrown on the cases reported in literature where such an origin could not be positively excluded, and,

(6) We can now say, that a true metaplasia really exists.

(7) We may, so far, differentiate between three forms of epithelial metaplasia:

(a) Superficial metaplasia as we find it particularly in the nose and ear.

(b) Metaplasia with upward growth in the form of a condyloma acuminatum, as observed by Lubarsch in the gallbladder and by Pollak in the urethra.

(c) Metaplasia with an outspoken tendency to grow downward like carcinoma.

The first form may become malignant in the course of time, the second form, probably soon and the third form, which is represented by our cases reported, shows two principal characteristics of carcinoma, downward-growth into the deeper tissues, and practically unlimited proliferation of cells right from the start.

(d) The close relation of metaplasia to carcinoma, is clearly indicated by the casuistic material in the reports, found in literature.

(e) The fact, that we have experimentally produced skin from a mucous membrane of the stomach, a formation that is considered a characteristic product of the ektoderm, from the derivates of the entoderm, makes it impossible to keep up the sharp differentiation of the three germinal layers.

Microphotographs showing the conditions described were demonstrated.

34 Washington st.

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## CANCER OF THE UTERUS.

BY E. MAMMEN, M. D., BLOOMINGTON.

The types of malignant disease which afflict the corpus and cervix uteri are chiefly epithelioma, carcinoma sarcoma and adenocarcinoma, the latter very rare. In this community, including the city of Bloomington and the County of McLean, there are on an average, annually forty-two deaths from malignant disease, of which sixteen and two-thirds per cent, or about seven *per annum*

are due to cancer of the uterus. The population of Illinois in round numbers is five million; this would make an average mortality throughout the state of about thirty-one hundred per annum from malignant disease, of which over four hundred and thirty-four are due to uterine cancer,—the average age being a little over forty-six years. The prevalence of cancer is not confined to particular localities, but exists with fair uniformity throughout the state. Actual figures obtained through the kindness of Dr. J. A. Egan, Secretary of the State Board of Health, show this estimate to be fairly correct, due allowance being made for some omissions in reports from rural districts. The actual figures hereto attached show a death rate of sixty-three per 100,000 of a population of 5,127,575.

YEAR 1902. DEATHS DUE TO CANCER.

UTERINE CARCINOMA. Total 324.

| | COLOR. | | NATIVITY. | | | | SOCIAL CONDITION. | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Fe. | Wh. | Col. | Ill. | U. S. | For. | N.S. | S. | M. | Wid. | N. S. |
| | 324 | 317 | 7 | 66 | 122 | 122 | 14 | 15 | 206 | 95 | 8 |

| AGE | | | | | | | | OVER | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 15-20 | 20-30 | 30-40 | 40-50 | 50-60 | 60-70 | 70-80 | 80-90 | 90 | N. S. | | |
| 1 | 8 | 51 | 88 | 84 | 57 | 31 | 7 | 0 | 2 | | |

| Jan. | Feb. | Mar. | Apl. | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 28 | 38 | 23 | 24 | 32 | 32 | 30 | 26 | 27 | 24 | 24 | 26 |

It is reasonable to assume from these figures that at this time a thousand women,—mostly in the prime of existence and usefulness, are suffering from this loathsome disease, within the bounds of our state. Hence a study of this subject is well worthy our most serious consideration. We may not be able to enter the field of biologic research to discover causes, but it will be possible to hint briefly at our knowledge of the subject as it stands today,—gathered from correspondence, literature, and as regards treatment, to some extent, from personal observation.

YEAR 1903. UTERINE CARCINOMA. Total 327.

| | COLOR. | | NATIVITY. | | | | SOCIAL CONDITION. | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Fe. | Wh. | Col. | Ill. | U. S. | For. | N. S. | S. | M. | Wid. | Not stated |
| | 327 | 322 | 5 | 77 | 124 | 116 | 10 | 23 | 211 | 86 | 7 |

| AGE | | | | | | | | OVER | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 15-20 | 20-30 | 30-40 | 40-50 | 50-60 | 60-70 | 70-80 | 80-90 | 90 | Not Stated | | |
| 2 | 8 | 35 | 97 | 94 | 61 | 19 | 7 | 2 | 2 | | |

| Jan. | Feb. | Mar. | Apl. | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 31 | 29 | 28 | 24 | 24 | 25 | 29 | 36 | 40 | 31 | 19 | 20 |

| Uterine Carcinoma | Fe. | July | Aug. | Sept. | Oct. | Nov. | Dec. |
|---|---|---|---|---|---|---|---|
| Chicago | 90 | 13 | 19 | 17 | 16 | 13 | 12 |
| Northern Section | 51 | 7 | 9 | 12 | 10 | 4 | 4 |
| Central Illinois | 21 | 3 | 3 | 5 | 3 | 2 | 3 |
| Southern Section | 13 | 4 | 5 | 1 | 2 | | 1 |

| | Pop. | |
|---|---|---|
| Chicago | 1,858,404 | Central Section 1,188,865 |
| Northern Section | 1,331,787 | Southern Section 728,519 |

RATE—6.3 per 100,000 population 1903.

It is of interest to note that certain tribes are exempt from the ravages of this disease. Some towns in Spain, the Suda district in the interior of Africa, the Canary Islanders, and some rude semi-civilized tribes are not afflicted. Carcinoma is virtually a disease of civilization and will some day be classed among those that are preventable, when once its pathology is clearly understood.

During the past two years careful studies have been made, both at home and abroad, along the line of chemical, bacteriologic, and biologic theories of causation. The first and second have been practically excluded, and it now remains to investigate further those biologic processes which seem to be influenced by organisms other than bacteria,—processes which some observers hold are caused by the presence of elementary types of protozoa, acting upon cell metabolism. Gaylord and Clark and Bell of New York agree that cer-

tain ameboid forms found in tuberous growths on vegetables are identical in morphology, with other bodies of the same character found in cancer. The identity of these bodies in biological activity has not yet been proven, nor their continuity from the vegetable to the animal cell. Clows, (Buffalo Medical Journal, August, 1903) shows that there is nothing in this parasitic theory, that is incompatible with various toxic and chemical theories. The chemico-toxic constituents, peculiar to cancer, may well be the result of the presence and growth of some form of intracellular parasite. We have much evidence yet unpublished going to show the protozoan matter of the cancer parasite in which we fully believe, but I cannot as yet refer you to any of our own publications in which this is clearly set forth. Investigations in this borderland between the known and the unknown, seem to have frequently led the investigator so close to the truth that valuable discoveries cannot be far away.

The characteristics of uterine cancer, especially of cervical epithelioma and carcinoma admit of present and unmistakable diagnosis, even early, very early in the case. Ordinary erosions, ulcerations, especially when combined with lacerations, at once present suspicious appearances that call for exact inquiry and examination. A thickened neck, margin of os indurated, the surfaces around eroded, increased discharge, especially when malodorous, or hemorrhage, should lead at once to the use of the microscope. A slight curettement, the snipping off of a fragment, the preparation of a slide,—these are measures never to be neglected, when the question of cancer arises in the mind of the examiner. The aid of an expert pathologist can always be obtained,—for slide, or specimen in preserving fluid can readily be shipped. It may be urged that microscopical appearances alone cannot demonstrate these cases conclusively. The peculiar arrangement of the cells, their size, appearance, and contents, the breaking down of basement membrane, and other peculiarities, furnish excellent proof, that will hardly fail to make clear demonstration to the pathologist. When these indications are corroborated by family and personal history as well as by macroscopical appearance, the diagnosis is clear. The earlier this diagnosis is made the better for the patient. This will render the advice to be given clear, positive and unmistakable. By unanimity of counsel, should more be sought, the life of the patient may be prolonged for years,—though she herself will hardly realize the situation.

When the diagnosis is made easy by further developments,—all hope of prolonging life materially, must of course be abandoned.

The manner in which these cases are frequently handled is well illustrated by the following, which occurred under the observation of the writer.

Mrs. N.—was treated for several months by her family physician for "Ulcers of the womb." After a time she concluded that she was no better and asked for counsel. Consultation resulted in disagreement—the consultant immediately suspecting and indeed recognizing the malignant nature of the case. Hence a third physician was called,—a man whose opinion, considered from the standpoint of age, experience and personality, would carry much weight. After physical examination he decided that he could not tell whether the disease was malignant or not. A slide was prepared by a fourth physician who had not seen the patient, and the appearance of the slide was typical of epithelioma, but the family physician and the second consultant were not familiar with microscopical appearances, and the council lacked unanimity. The family physician insisted that the disease was benign,—was in fact improving under treatment for ulceration. Much valuable time was lost. Finally the patient was taken to a neighboring city, where vaginal hysterectomy was performed and malignancy clearly demonstrated. Recurrence took place within a year and the patient died.

The general practitioner is under the necessity of constant vigilance. Even in an active practice in our state he will not see cases frequently,—each one, however, will teach the ever urgent lesson of early, very early diagnosis.

In considering the treatment of this dis-

ease the many sided views found expressed in current medical literature serve to demonstrate our impotence in accomplishing definite results by systematic or general remedies. Bell (Medical Record of 1903) advocates the use of thyroid extract, on the ground that toxins of cancer are affected by the secretions of the thyroid gland. Rogers (Annals of Surgery 1903) advises the use of increased carbo-hydrates as food, on the theory that cancer is due to enzymes assimilated from the blood and that more glycogen is necessary for the life and growth of the cells. Rost (Indian Medical Gazette, Calcutta, 1903) shows that benefit arises from administering a strictly diabetic diet, and adds to this two ounces of chloride of sodium daily, with local application of diluted hydrochloric acid. Malm (Presse Medicale, Paris 1903) found that hemorrhage and other symptoms may be checked in uterine cancer by a solution of adrenalin as strong as one to one thousand. Many remedies and methods of treatment have found advocates, after temporary trial, only to be discarded after more thorough and extended use. In fact when such remedies are considered we are probably no nearer the truth than were our fathers of the Seventeenth Century, when a combination of Cinnabar, Ashes of Old Burnt Shoes, Dragon's Blood, and White Arsenic, was believed to be, and recommended as an infallible cure. It is however safe to state as a general principle that tonic treatment, whether by means of food, fresh air and exercise, or drugs, in so far as it benefits the general health, will to that extent, and only to that extent, benefit those who are afflicted with uterine cancer. When cachexia has developed, when hemorrhages are frequent, when the cauliflower erosion has appeared, when the uterine glands, and other neighboring glands are involved, radical treatment need no longer be considered. Palliative treatment for such cases is alone indicated, and may be applied with the hope only of promoting comfort.

Interest in the subject of treatment centers at the present time in two methods supplemented by a third, based upon total extirpation of all affected portions. It is a safe rule that in cervical epithelioma the rapidity of recurrence will be indicated measurably by the amount of vaginal wall involved. The best results are to be expected when the disease has not extended beyond the cervico-vaginal line. Landau operates with the full expectation of non-recurrence for many years, when this is done before the passing of the line of this junction. These are cases for vaginal hysterectomy. Whenever the glands of the broad ligaments and other pelvic tissues are invaded, or where there is an enlarged corpus, or narrow and high vagina,—abdominal hysterectomy is the operation of choice. Either operation is to be followed by the persistent use of the X-Ray. Weber (New York Medical Journal 1903) advises early removal, and the use of the X-Ray after each operation. Leonard (American Medicine November 1903) follows the same plan. Clarence E. Skinner of New Haven believes that every operation should be followed by the use of the X-Ray. Edwards (Journal of Surgery, Oct. 1903) advises the use of the X-Ray when employed by wise and competent hands. They are capable of much mischief when improperly used. In fact the consensus of opinion of prominent operators and writers for the year 1903 is all to the effect that extirpation should be done early and be followed by the persistent use of the X-Ray. As yet radium, though of easier application, has not fully entered the field. Its activity has not met expectation and its use is still in the experimental stage. Numerous favorable reports on the X-Ray however abound. Application to the pelvic organs can be made by means of specially constructed tubes through the vagina. (Tube exhibited.) This agent has been in the field only a very short time and the question of recurrence after its use cannot be settled for a time. But its effect on superficial malignant disease, and the marked benefits derived in the hands of a large majority of observers, make it at this time an essential factor in radical treatment.

Gelhorn (American Gynaecology, 1902) shows that in only about one-third of all cases of uterine cancer as they first come under observation are the regional glands

of the pelvis involved, and that such involvment does not occur in the incipient stage of the disease. Such cases are proper always for hysterectomy by the vaginal route, provided there is sufficient room to admit of thorough removal. This is the operation of choice in all early cases. During 1903 there was much discussion as to the relative merits of the two routes. In either case, all involved glands and other tissue must be removed, or recurrence will take place early. The Vaginal operation can be performed, on an average in twenty-five to forty minutes, there is little danger of infection, but slight shock or none. Recovery takes place rapidly. The patient often is scarcely aware of the gravity and importance of the operation performed and she at once rebounds into good health and spirits. In this the ureters should not be injured. When the disease has closed in around these, then adjacent tissues are also involved so as to call for the more radical abdominal operation, and the prognosis is much more grave.

With the co-operation of general practitioners in every precinct, town and village, could not this stage of uterine cancer be forestalled in the majority of instances? Our teaching should change from the doctrine of incurability to that of curability in the vast majority of cases, by total extirpation, and radio-therapy early,—very early.

In my own practice for the last ten years the principles here laid down were followed. There were eleven operations *per vaginam* and two by the abdominal route. Operation was refused nine times in cases that were too far advanced, and three times curettement was resorted to as a palliative measure, with such other treatment as relieved pain and hemorrhage.

In a community the size of this, it is believed that late operation with its doubtful results only serves to bring its performance into disrepute,—while refusal and clear teaching that these cases can be cured early result ultimately in the saving of life. Of the eleven cases operated on *per vaginam* three are of more than seven years standing, four of more than four years, and four of more recent date; no recurrences have appeared. While this is not of sufficient duration to make a strong test, the argumen presented is of value. The two operations b the abdominal route have as yet no appea ance of recurrence, but sufficient time ha not elapsed. It is believed that in thos cases where operation was refused, life con tinued for a longer period than had operatio been resorted to.

Statistics of large numbers of cases ar furnished by our great hospitals in medica centers. These teach the same lessons an show further that the surgeon's advice is i a large per cent of cases sought too late, s again the conclusion that to get the best re sults, a diagnosis must be made early, very early, and operation promptly performed.

Abdominal hysterectomy when resorted to should be most thorough in character. Not alone the removal of the uterus and its adnexa but such parts of the vagina and broad ligaments as may be involved, with all pelvic glands. Many of these lie in close proximity to the ureters, which may be accidentally injured or require resection.

Wertheim of Germany as well as careful operators in our own state have done much to bring out the more extensive procedure. Sampson of John's Hopkins finds that the performance of this thorough operation including resection and implantation of ureters will take from two to three hours, even by expert operators; the uretero-vesical implantation taking only ten minutes. He advises resection and implantation of ureters rather than stripping them, which cuts off their blood supply and leads to the liability of uretero-vaginal fistula. The operation should be performed as follows, according to Sampson:

"Preliminary catheterization of the ureters may be done when possible with silk bougies, before the patient takes the anesthetic.

"A row of interlocking catgut sutures is now placed around the vagina, below the growth. These sutures are passed with a large curved needle, includ large masses of tissue, and extend laterally as far as the needle will permit, while a finger in the rectum prevents their being passed too deep

posteriorly. After all these sutures have been passed they are tied. This procedure is for the purpose of occluding the large vaginal and paravaginal veins which sometimes give rise to troublesome venous hemorrhage.

"A catheter is now placed in the bladder and retained so that it may be filled with sterile water. This will aid in preventing injury and in implantation of ureters, should this be required.

"The patient is now placed in the Trendelenberg position and the abdomen is opened in the median line. After packing back the intestines with gauze, the ovary of the side on which the ureter is to be resected is grasped and pulled downwards and outwards, thus making taut the ovarian vessels and peritoneum covering the iliac vessels. The peritoneum is now split below and parallel to the ovarian vessels as high up as the origin of the internal iliac artery. The ureter can be seen in a thin patient lying in the lower peritoneal flap, and its blood supply is not interfered with. Dissection should be downward, removing the fat and lymphatic structures, including glands from along the iliac vessels, thus exposing the branches and removing the tissue *en masse*. By using a blunt dissector hemorrhage may be avoided.

"After exposing the vessels in this manner down to the uterine artery, the ovarian vessels and round ligaments are cut. The uterine artery is tied twice at its origin, taking care to include in the ligature the vaginal artery, but not the superior vesical artery, and cut between the two ties.

The other side is treated in a similar manner, if both ureters are to be removed; if not, the uterine vessels are tied and cut at their origin, and then lifted up and dissected away from the ureter, taking care not to injure its outer vascular coat.

The uterus is now pulled upwards towards the umbilicus and the bladder is dissected free from the cervix. The dissection is carried on down to the ureters and if thought best one or both are cut off close to the bladder.

If the lower end of the ureter is to be sacrificed, it should be amputated just above the place where the uterine artery crosses it, and all the tissue lateral to the cervix including the lower portion of the excised ureter, may be dissected from the pelvic wall.

The utero-sacral ligaments are next cut and the rectum is dissected from the cervix and vagina.

The dissection is now carried on around the growth on all sides and down the vagina to the preliminary catgut ligatures.

Then follows the uretero-vesical implantation.

The table is placed in the horizontal position.

The ureter is split laterally for a distance of seven or eight mm., so as to form a dorsal and ventral flap. A silk suture with a needle at both ends is passed through each flap from side to side just beneath the ureteral mucosa. The bladder has been filled with sterile water. Choose a place in the bladder with a good blood supply, make two parallel horizontal incisions, the width of the ureter apart and as wide as the same and connect these two by a transverse incision. This gives an Z incision, and on spreading the flaps apart forms a square hole in the bladder with two lateral flaps. The needles are next passed through this hole and through the bladder wall from within out, those from the dorsal flap coming out below the opening about 5 mm., from the edge and the width of the ureter apart, and those from the ventral flap coming out at corresponding places above the opening. The ureter is now drawn into the bladder by the sutures and they are tied. The lateral bladder flaps are now sewed to the side of the ureter with fine silk sutures which pass through ureteral and bladder wall down to the mucosa and close carefully.

In this operation all precautions must be taken to counteract shock, but when successful recurrence may be slow. When we reflect however that this procedure even in the hands of expert operators requires from two and a half to three hours for its performance, —then again we are impressed with the force of the argument for early, very early diagnosis and operation.

## THE GEOGRAPHICAL DISTRIBUTION AND THE MEDICAL TREATMENT OF CANCER.*

BY W. C. BOWERS, M. D., DECATUR.

There doesn't seem to be a common understanding among physicians and surgeons as to the scope and limitations of the term, Cancer.

Lovell Drage[1] says, "Cancer is a very wide term, embracing a very large number of pathological growths."

Henry Morris[1] in his Bradshaw lecture in 1903, commenced by saying: "I have chosen Cancer, meaning thereby both Carcinoma and Sarcoma as the subject of this lecture."

In this paper the meaning is according to the most popular German definition—"every kind of malignant tumor not connected with an infectious disease.[3]"

If the cell theory of Cancer is correct, it seems strange that it is found in great frequency in one country, and not at all in another, although people of a Cancer age are found in both countries.

Cancer[2] is met with extensively in the United States, particularly in the larger towns; in Australia, where it, with Phthisis and Enteritis causes the majority of deaths, in Middle and Southern Europe, Japan, China, and Farther India.

It is moderately frequent in Algiers, Madeira, Ecuador, Peru, Mexico, and Pueblo; but more rare in Arabia, Syria, Persia, Canada, Southern California, Guiana, and Spain; and very rare in Greenland, the Faroe Islands, Northern Europe, Greece, Turkey, India, Abyssinia, Tunis, Egypt, South Africa, in Tropical and Subtropical Districts, and in the West Indies.

It is unknown in Northern Asia, The Canary Islands, The Ceuta District in Africa and in many large towns in Spain.

In the past few years much has been said, both in the Medical Journals and in the newspapers, about the great increase in Cancer.

For a long time Massachusetts bore the brunt of the accusation, probably because her statistics were more carefully arranged, covering a longer period of time than those of most any other state or country.

In the Shattuck lecture[5] before the Massachusetts Medical Society, in June, 1901, the following conclusions were arrived at: "If death from Cancer should go on at the present apparent rate of increase of the past fifty years, in two and a quarter centuries every person over thirty years of age would die of that disease; but the assumed increase is probably due to better diagnosis and registration; and until the ratio of all of the deaths from Cancer, over thirty years to the total mortality of the same age has reached 8 or 9%, which is shown by autopsies to be the true rate for Cancer, it is not justifiable to speak of the increase as inherent in the disease itself.

Ninety-six per cent of deaths[5] from Cancer occur in persons over thirty years of age.

Many states have well-kept statistics, but covering only two or three years generally, which is too short a time from which to draw conclusions.

Dr. N. K. Foster, Secretary of the California State Board of Health, writes me that in his state there were, from Cancer, 319 deaths in 1899, and 295 in 1900, in a population of 600,000. In 1901, there were 467 deaths from Cancer, in a population of 700,000.

In the United States Census for 1900 the following statement occurs: "In comparison with 1890 there was a decided increase in the death rate due to Cancer and Tumor, from 15% in the cities, to 27% in the rural districts."

Harris Moak[4] has made a careful study of this report, and has determined a proportionate apparent increase in several other diseases. The per centage of increase is:

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|---|---|
| For diseases of the kidneys | 40% |
| Of influenza | 28.5% |
| For apoplexy | 36% |
| For heart disease | 10% |
| For old age | 20% |
| For cancer and tumor | 23% |

He concludes that "1st, cancer and tumor have not increased in any greater proportion

*Read at the 54th Annual Meeting, May 17, 1904.

than have several other diseases common to adult life and old age." "2d, the geographical distribution of cancer and tumor corresponds almost exactly to the geographical distribution of people of greatest age." Cancer and tumor are therefore most frequent in the sections where old people are most numerous.[11]

In a study of five large cities in Europe, it was found that uterine and mammary cancer have declined, that cancer of the rectum is at least stationary, that cancer of the mouth and its annexes are perhaps increasing, but that the total registered increase of cancer is above all due to the registered increase of death from visceral cancer.[11]

Illinois statistics for 1902 show—

1027 deaths from gastric cancer,
324 deaths from uterine cancer,
234 deaths from intestinal cancer,
186 deaths from breast cancer,
765 deaths from other forms of cancer.

1055 were males, 1487 females, 115 were under 30 years of age and 1139 were foreign born.

For 1903, 1129 deaths were from gastric cancer,

327 deaths were from uterine cancer,

256 deaths were from intestinal cancer,

181 deaths were from breast cancer,

778 deaths were from other forms of cancer.

1178 were males, 1493 were females, 99 only were under 30 years of age, and 1319 foreign born.

As to the increase of Cancer, it may be that "the alarm is out of proportion to the increase" but the disease is so loathsome and terrible in its ravages, destroys such a great number of people, and an early diagnosis is so valuable that he who discovers anything aiding in the least an early diagnosis confers a blessing on mankind.

In speaking of the treatment of Cancer, one may divide the cases for convenience into curable and incurable as far as medicine is concerned; and into operable and inoperable as far as surgery is concerned.

The curable are to be treated by excision, applications, injections, or by internal medication.

Since 75%[15] of all cases coming to the surgeon are inoperable, strenuous efforts are being put forth to find something to benefit or cure these cases.

For many years morphine was about the only remedy thought of in what is known as incurable cases.

Cocaine, twenty years ago became widely known as a comforting agent in some cases through its use on the throat of General Grant.

In some instances today as much of a cancer is cut away as possible, and the remainder treated by caustics or X-Ray.

It is probable that but few cases are as yet cured by medical means when it has passed deeper than the skin, and Skin Cancer takes up only about 16% of all Cancers.

Nearly all forms of superficial Cancer, suspicious-looking moles, warts, or similar lumps can be better treated by the so-called Cancer pastes than by the knife.

There are several caustic remedies used in the treatment of Cancer that are curative or beneficial when properly used. They are arsenic, caustic potash, zinc chloride, pyrogallol, acid nitrate of mercury, thermo and electro-cautery and the X-Ray or similar treatment.

These are all especially useful in the superficial Cancers, and arsenic is the most important among the purely medicinal substances.

Arsenic, as commonly used in Marsden's or other similar pastes, should not be applied over more than a square inch.

Marsden's paste as recently modified is

Arsenious acid,
Pulv. Acaciae equal parts,
Cocaine 10%,
Aquae q. s. to make a soft paste.

Apply on rubber plaster to the ulcer, then a compress and gutta percha tissue. Or, if the skin is unbroken, remove the epidermis with a 5 to 10% caustic potash solution, applied for several minutes.

Renew the paste every 24 hours, covering two or three days usually, then poultice until

the slough separates, and treat the remaining simple ulcer with Carbolated salve. Repeat the operation at any time some Cancer tissue seems to have remained.

For very superficial cases use a smaller proportion of arsenic, and for deeper cases a larger proportion may be used.

The caustic potash should be used in stick form[11] on small or beginning skin Cancers; and one thorough application of a few minutes is usually sufficient when the action should be stopped by the use of vinegar, and sometimes a poultice applied.

A 30% solution of acid nitrate of mercury may be applied for from 5 to 30 minutes after curetting some Cancers, and will finish a cure in many such cases.

Pyrogallol and arsenic have an elective action for the pathological tissue, while the other medicinal caustics mentioned destroy any tissue.

Pyrogallol is painless and nondepressing though somewhat feeble in action, and is useful in superficial large surfaces especially in the old or feeble patients.

It is applied in an ointment of 25 to 33⅓% strength with vaseline and simple cerate, for ten days to three weeks with intervals of poulticing and the picking off of sloughs.

Zinc chloride is effective but very destructive and mummifies the tissues.

It is often used in the strength of one part chloride of zinc to three parts of flour, using a saturated solution of hydrochlorate of cocaine to mix it with.

Probably Bougards[11] paste is the best known formula. It consists of—

| | |
|---|---|
| Wheat flour and starch | 4 drachms. |
| Arsenious acid | 4 grains. |
| Cinnabar and ammonium muriate, of each | 20 grains. |
| Corrosive sublimate | 2 grains. |
| Chloride of zinc crystals | 4 drachms. |
| Boiling water | 6 drachms. |

The first six are well mixed, and the chloride of zinc added dissolved in water. From five to 20% cocaine may be added as the application is very painful.

If the skin is intact, it may be macerated with the caustic potash solution, or as I have done a few times, scarify the surface slightly with a sharp knife before applying the paste.

Arsenic as a rule should not be applied over more than a square inch of skin. (Marsden.)

On surfaces three or four inches square arsenic may be applied safely in strength recommended by Hebra.

[11]Arsenic ..... 1 part.
Cinnabar ..... 3 parts.
Unguentum aquae rosae ..... 24 parts.
Cocaine ..... 10%

This should be applied on a fresh plaster daily until considerable inflammation is aroused and a slough shows itself, then poultice this out, and reapply the paste if any disease remains.

Calcium carbide placed in the uterus after thorough curetting was originally used by Etheridge[14] in inoperable cases and seems to have done well in his hands.

A 30 to 40% chloride of zinc solution is more popular treatment, and seems to have cured a number of cases.[15]

Stelwagon[11] recommends on large surfaces that the cancer paste be applied in center over a square inch, and the chloride of zinc paste surrounding it covering the balance of the surface.

Injections of caustic or allied substances are being tried by many workers in this field, are considered dangerous and are used only in the deep inoperable cancers.

Those most used are alcohol after the method of Hasse; boiling water, especially in sarcomata after the method of Wyeth; acetic acid, one to seven in water, as recommended and used by Broadbent and quite recently by Cooper[12] are at present the most used remedies in this manner.

In cases inoperable or incurable, there have been a number of remedies used, principally internally with reported benefit.

Two cases[18] of carcinomata of the stomach showed cessation of pain, increase in weight and disappearance of the cachexia, under the use of one minim up to five minim doses of a one per cent solution of the chloride of platinum.

Several years ago condurango bark[19] had some reputation. Sixty-four cases of "can-

doubted cancer of the stomach" were treated by giving ten grammes of the bark daily for months, in which the "visible tumor diminished in size in seventeen cases, and disappeared altogether in eight cases."

Chelodonium majus,[12] a plant with narcotic properties allied to opium, has recently been studied principally by Russian physicians. It is said to enjoy a great reputation in the East Indies.

It is used by giving a half-grain of the extract, increased to five grains daily in peppermint water, and a solution of the extract applied. Or, a solution of equal parts of chelodonine, glycerine and water may be injected into the substance of the tumor. Several[20] external cancers are reported cured, and others both external and of the alimentary tract greatly ameliorated.[20]

Dr. C. C. Hunt of Dixon, Ill., apparently cured a case of medullary carcinoma of the shoulder region by using injections of the fluid extract of chelidonium majus, full strength directly into the tumor.

He also applied it to the ulcer and gave it internally. The severe reaction usually reported does not seem to have appeared after his injections.

As to tuberculin, McCasky[22] says, "In view of the occasional retrogression of cancer after the use of tuberculin, it may sometime be worth while to try a systematic injection into cancerous tissue."

Adrenalin in ten per cent solution has been used on malignant ulcers, and some experimenters are hopeful that it will retard the growth of the tumor.

An attempt is being made to produce a useful cancer serum, but as yet no one has quite succeeded.

Cancroin[23] is a toxin isolated from cancer juice by Adamkiewicz. He reports four cases of cancer of the esophagus, and several of other parts of the body cured by this remedy. Kugel reports a case of breast cancer cured by it.

Coley's Fluid made of the toxins of erysipelas and bacillus prodigiosus and injected, causing a severe reaction, is most beneficial in the spindle celled variety.

A shield[24] has been made to fit the breast in such a way that the air under it can be exhausted, thereby making suction, and preventing the absorption of septic products.

G. B. Massey reports several cases of superficial cancer cured by electro mercuric treatment. Its benefit in inoperable cancer is probably not so certain.

He certainly reports a sufficient number of cases well after three years to establish the remedy on a fair footing.

Cinnamic acid is one of the late remedies which is thought to promise benefit.

"To sum up:[1] the condition which it is designated to produce is, first a lencocytocis and second a fibrosis in the tissues affected by cancer. In the case of pulmonary tuberculosis there is no difficulty in producing these conditions. In that of cancer much greater difficulty is experienced in advanced cases than in tuberculosis. However, it is claimed that the treatment is soundly based, and that although it is quite likely that the best possible means of initiating the changes desired has not yet been found, it is only a matter of time for improvement in the details of treatment to be effected. It is used by injection and causes a severe reaction.

A method known as ignipuncture, in which fine needles of a Paquelin or Galvanocautery are thrust into the tumor and deeply around it, is reported to have cured quite a number of cases of cancer of the skin and mucus membranes. The wound is also dressed with a solution of copper.

Captain Rost, of India, reports a case of cancer cured by the internal use of salt. He found saccharomycetes in both carcinomata and sarcomata, and that they could only develop when the natural chlorin of the tissues was deficient. He aims to supply it by giving large quantities of salt.

Braithwait puts excess of salt as a cause of cancer; and the Cancer Committee of Harvard had decided that "the so-called blastomycetes (saccharo-mycetes) produce[11] essentially nodules of peculiar granulation tissue, which are not cancerous nor in any sense true tumors."

However much or little may be said in favor of these remedies that I have men-

tioned for incurable or inoperable cancers, morphine, last but not least, remains the solace of the doomed.

In incurable cases its use should be commenced as soon as pain calls for relief.

Also "apart from the narcotic effect of the drug it also appears to have some inhibitory influence on the growth, and Professor Osler has reported two hopeless cases of recurrent carcinoma of the breast in which morphia was freely given, and to the surprise of the physician both cases were seen many months afterwards in good health, and with great diminution in the size of the tumors. These results are at any rate as good as those obtained by some of the other methods of treatment."

To sum up,—

1. Give prompt treatment of all superficial cancers or suspicious looking spots with cancer paste or similar remedy or by the X-Ray.

2. The inoperables should be offered the treatment seemingly best established for the particular case and not abandoned.

3. In all cases that are not benefited by well or partially established methods of treatment or if pain demands it, morphine should be used with a free hand, with the expectation of relieving pain, and in some instances checking the growth.

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## THE ULTIMATE RESULTS OF OPERATION FOR CARCINOMA OF THE BREAST.*

BY D. W. GRAHAM, M. D., CHICAGO.

If we exclude the skin the mammary gland affords the best opportunity of all the organs and tissues of the body for testing and judging the value of the surgical treatment of carcinoma. Its accessibility allows of an early reading of the signs of disease both by the patient and the physician and a timely diagnosis is therefore comparatively easy. Its anatomical relations also are such as to permit a wide removal of suspected tissues with little sacrifice to the patient in the way of disfigurement or function. As to frequency of involvement it stands third on the list when compared with other organs and tissues. The proposition that carcinoma is at first a local disease is almost universally accepted and on this are based all the hopes and efforts for a permanent cure by operation.

The ultimate results of operation for carcinoma of the breast are influenced in some degree by minor factors such as the age and other conditions of the patient, the part of the gland affected, and the histological character of the tumor itself. But for practical purposes these results may be considered as depending chiefly on the extent of the disease at the time of the operation and on the thoroughness of the operation.

First, the extent of the disease.

Involvement of the axillary and intervening lymphatics begins very early and no doubt in many cases before the primary focus

*Read at the 54th Annual Meeting, May 17, 1904.

in the breast is recognized. Indeed, it occasionally happens that they are found palpable under the skin at this early stage and thus furnish the first indication of the presence of the disease. Dennis in his text book on surgery teaches that "in all probability within six months from the date of the first appearance of the induration in the breast the axillary glands are not infected," though he admits the possibility of earlier infection. This is not a safe opinion for any teacher to put forth. And he takes no account of the months of time the disease is developing before the induration can certainly be made out. The evidence obtained in the experience of every surgeon from operations made before the lapse of six months "from the first appearance of the induration" proves the contrary.

However early the operation, lymph gland infection is found almost without exception and which it requires no microscope to detect. Kuesters experience may be quoted in this connection. In 117 operations for carcinoma of the breast in which the axillary glands were removed and subjected to thorough microscopical examination, these were shown to be infected with carcinoma in all but two. No doubt a considerable number of these cases were operated upon before the lapse of six months from the time of the first appearance of the induration. There comes a time sooner or later when the disease extends by these channels beyond the limits where it is anatomically possible to remove it.

The lymphatics of the skin may also become involved at an early stage though this usually is a later development than that of the subcutaneous lymphatic system. The evidence of this mode of extension of the disease is the appearance of small lenticular nodules in the skin, which when present in considerable numbers, or when scattered widely, may contraindicate an operation. But when these skin nodules first appear after an operation has been made they indicate a hitherto unsuspected extent of carcinomatous invasion and one that affects the prognosis unfavorably. Moreover, metastases in the bones or viscera may take place early in the course of the disease and remain unsuspected at the time of the operation. It needs hardly to be said that an operation would scarcedly even retard the final result under such conditions. It follows therefore, that if we could determine the limits of the disease beforehand the number of cases subjected to operation would be diminished rather than increased, but our operative statistics would be correspondingly improved. Fortunately there is a more hopeful way of improving our statistics than by seeking for this power of discrimination. And this way lies in the effort to limit the disease to its original focus, as near as may be, by early recognition and early removal. For surely there is a period, theoretical it may be granted, when carcinoma is so limited if the prevailing conceptions of the disease are correct. Then to recognize the disease at the earliest possible period so that the practical and the theoretical will more nearly coincide is our imperative duty. But early diagnosis is beset with difficulties. In the first place the opportunity is wanting. And therein we may preach to the public about its duty to consult the physician early and often when there is suspicion of trouble. But this will avail little while human nature is what it is, and it is now not greatly different from what it always has been and always will be. Our preachments affect the few and are of no effect on the many. After all, the chief responsibility for an early diagnosis lies with the physician. It is not necessary here to recite the ordinary signs and symptoms of carcinoma of the breast. These are fully given in all modern text books.

But it will be helpful to recall that of all tumors of the breast over 80 per cent are malignant and of all those in patients over 40 years of age, 85-90% will be carcinoma. And when it is recalled that the attitude of surgery today, based on sound pathology and clinical experience, is that all new growths of the breast, of whatever nature, should be removed it ought not to be difficult for anyone to make a working diagnosis comparatively early. When it comes

to advising an early operation there is encountered a widespread prejudice against any operation for carcinoma. This prejudice is shared by a considerable part of the medical profession and has for its basis the teaching that prevailed in some quarters up to 25 and even 20 years ago. It must be confessed that there was some justification for that attitude at that time, for incomplete operations were the rule and palliation the object.

Moreover the operation encounters a prejudice both within and without the profession because of its supposed gravity. This is due to the influence of statistics based on preantiseptic surgery. As an example, Billroth, in 1878 published 170 operations with a mortality of 23.7%. Whereas the methods now in vogue in the hands of experienced men with properly selected cases, render the operation of amputation of the breast practically free from danger except that incident to every operation. A surgeon of today with half the mortality rate of Billroth would be chargable with malpractice, and this in spite of the fact that the modern operation is extensive and tedious as compared with former methods. The prejudices and erroneous views along these and similar lines, together with the indifference to responsibility on the part of many in the profession militate against early operations for carcinoma. The conception of the patient is that an operation should be a measure of last resort and that a last resort operation will accomplish all the purposes of an early one. And from the attending physician too often we get a message which runs something like this: "Mrs. X. has a tumor of the breast which she consulted me about some six months ago. I then advised her to let it alone until it began to trouble her. It seems to be growing and I have advised its removal." It should be evident to every one then that if we would improve our ultimate results from this operation it ought to be performed at a time when it is possible to remove all the disease, if not always, yet with greater frequency.

The other factor which has an important bearing on the results of this operation is the extent and thoroughness of the operation itself. The older surgeons were satisfied with removing the primary focus of the disease, almost wholly ignoring the invasions of the neighboring structures.

One of the first efforts to impress upon surgeons the importance of endeavoring to get beyond the limits of the disease was made by Moore of London in 1867. Since that time Banks of Liverpool, Volkman and Heidenhain of Germany, Gross the younger and Halstead of this country, besides many others, have been conspicuous advocates of a more thorough operation. But the evolution in this direction was slow and halting until the improvements in general surgical technique, especially against hemorrhage and sepsis, has allowed the operation to be pushed to about the furtherest possible anatomical limits. This, often called the complete operation, consists, first, in removal of the skin wide of the suspected limit of its infection, regardless of the size of the open wound that may be left. Second, extirpation of all the lymph bearing subcutaneous fatty, areolar tissues, from the sternum on one side to the anterior border of the latissimus dorsi and subscapular muscles on the other, up through the axilla to its very apex including the infraclavicular glands; third, all the great pectoral muscles except its clavical portion and sometimes also the pectoralis minor, including all the fascia, areolar and adipose tissues about and belonging to these muscles. Fourth, cleaning off the fat and areolar tissue from the large vessels including the subclavian and axillary divisions. Fifth, dissecting out the supraclavular glands from the posterior cervical triangle. This last part of the operation is not practiced by many and not always by Halstead who first advocated it.

Objections have been urged against this so-called complete operation as a routine procedure. But the objections are trivial in comparison with the arguments in favor of it, especially when it is shown that the mortality from the operation *per se* is practically nil, and no greater than attends a less extensive one. The great argument in favor of it as a routine practice, is that the percentage of ultimate cures is increased and that it ranks higher as a life saving operation.

The above considerations are intended to show the way along which we should work for future improvement in the ultimate results of operation for carcinoma of the breast. The summing up of the whole matter is early recognition of the disease, early operation and thorough removal.

As to what is meant by "ultimate results" Volkmans well known statement has been generally accepted but with some modification. He says,"when a whole year has passed and a most careful examination can detect neither local recurrence nor swollen glands nor any symptoms of internal disease we may begin to hope that a permanent cure may be effected; but after two years usually, and after three years almost without exception, one may feel sure of the result." This is a very useful basis from which to reckon in making up our statistics of the results of the operation but all know that we cannot count a patient permanently cured even when there is no recurrence at the end of three years. Indeed there is no time while the patient is living when we may say positively that there will be no recurrence. So while we may properly speak of the three years limit in our statistics and estimates of our results there is no justification for using the term "permanent cure" in this connection.

And finally as to what the ultimate results actually are up to the present time the story may be briefly told. Figures and percentages when applied to such questions are always unsatisfactory and sometimes aggravating and yet they are necessary. With the complete operation in the hands of experienced operators recent statistics show the percentages of those having passed the three years limit without recurrence to range from 36, 28, 35, 45 to 57, making an average of about 40 per cent. In contrast with the older statistics this is truly favorable and encouraging.

**Discussion on the Papers of Drs. Futterer, Murphy, Mammen, Bowers and Graham.**

**Dr. Arthur Dean Bevan, of Chicago.**—Mr. President: I would like to congratulate Dr. Futterer upon the very excellent piece of scientific work which he has done and communicated to the Society this afternoon; also on the fact that he has been able apparently to produce artificially in rabbits stomach ulcers followed by carcinoma. Of course, there is this to be said about the demonstration, that it is not as yet complete. Histologically, it is very suggestive, that following irritation of the artificial ulcer there has been produced a growth of squamous cells which infiltrate the underlying tissue, which would seem to point very strongly toward the fact that he has succeeded in producing essentially the beginnings of carcinoma. There remains this one demonstration to be made, and that is, the production of such a lesion, followed by metastasis, which would, of course, clinch the entire demonstration. Personally, I am exceedingly interested in the point, because recently I had under my observation a case of squamous-celled carcimona of the gall-bladder in a case where the conditions simulated very much those conditions produced artificially in these experiments. The patient had gall-stones for some time, then evidence of suppuration, and I operated and found empyema of the gall-bladder, gall-stones, and what I regarded at first as granulation tissue. Fortunately, for scientific purposes we removed some of the granulation tissue and to our surprise we found that it was composed of squamous cells carcinoma and adeno-carcinoma. We found the cells of two different carcinomas side by side, with apparently a sharp line of demarkation, and no amount of transition.

As far as the other papers are concerned, I think that the symposium proves to us that the carcinoma problem is still one of the most difficult which we have to meet; that, as yet, there is but little light on the subject. There seems to be this tendency, as shown by recent numerous observations of the carcinoma problem, to diminish the importance of a possible mitotic cause of carcinoma. I am rather inclined to the belief, as shown by a recent discussion in Great Britain, and well summed up in a paper by Henry Morris, that we are beginning to look upon carcinoma as a lesion in which the epithelial cells become a parasite; that as yet we have no idea of the limited cause which determines this parasitic condition, but that there does not seem to be any great probability that these mitotic changes are of germ origin.

With reference to treatment, I was interested in what was said regarding the X-ray, and early operation. I am not satisfied that the X-ray is an important factor in the treatment of carcinoma. I am in a position to say that its limitations are very marked, and that its value is very small. I think its value is in proportion to the size and depth of the carcinoma. I am in sympathy with the proposition of using the X-ray in superficial epithelioma, and as a post-operative means in carcinoma where the original focus is not deeply situated. I cannot say that I am at all convinced that as yet, even as a post-operative measure, the X-ray is of any value in the treatment after extirpation of deep-seated carcinoma, such as that which involves the

uterus or stomach. In our work at the Presbyterian Hospital in Chicago we feel that as yet we have no evidence whatever to show that the X-ray has influenced beneficially any deep-seated carcinoma. That it has been of great value in superficial epithelioma, has been proven beyond peradventure. It is of distinct value in cases of superficial carcinoma of the breast, as a post-operative treatment, where we use the agent pretty thoroughly and directly in the region of the original focus. I think that point has been thoroughly demonstrated.

**Dr. Fenton B. Turck, of Chicago.**—I think the work that has been presented today by Dr. Futterer, and particularly the paper which I had the pleasure of listening to by him in Chicago, with the evidence furnished, is extremely valuable. Metaplasia occurring in the stomach, in an attempt at healing following trauma, is a very important advance. In the cases in which Futterer had positive results, no true ulcer had formed; mucous membrane had grown over the trauma and repair was apparently complete. In order to produce metaplasia it is necessary to alter the condition of the blood. Whether there is some other condition besides that of producing a loss of hemoglobin or changes in the serum, has yet to be considered as factors in this metaplasia. We know that if we produce any trauma in the stomach, healing will invariably occur without any apparent scar, unless the traumatized area is extensive. It is difficult to find any evidence of that trauma, even though we take a large or extensive area from the folds of the stomach, but where there have been changes produced in the blood, it has been found that we are able to produce a retardation in the restoration of the tissues after trauma. It is in regard to this point that we should consider these important changes that take place. It is in the process of healing that this seems to occur, and there is something that interferes with that healing which is necessary to produce artificially carcinoma by means of pyroligneous acid and other substances injected into the blood. The essential is not the trauma, a simple injury to the mucosa. If we are to look to the etiology simply as an injury, we should expect carcinoma to develop in patients who swallow jackknives, nails, and innumerable things, which are taken into the stomach without any apparent lesion being produced by them. There has been no ulcer produced by simply swallowing these various bodies, so far as I know. Glass-eaters swallow glass, and yet no ulcer of the stomach has developed ending in carcinoma. We must conclude that an important point lies in the study of the changes that occur in the serum or in the blood. Some work must be accomplished in order to determine the direct relation concerned in the healing process of a gastric ulcer, and the changes that occur in the serum.

The Society is to be congratulated on having had this splendid work presented before it.

**Dr. J. F. Percy,** of Galesburg: I have been greatly interested in this paper of Dr. Futterer's. I am afraid that we do not realize enough the immense amount of exacting work that it represents. What is it that makes these cells change? Dr. Bevan has spoken of the work of Morris, and the last speaker has referred to possible changes in the serum. Unfortunately, we know nothing about it. But in the same breath I hasten to say that it is just such work as this that will finally give us the truth we are after. I get up more particularly to call attention to the fact not previously referred to in this discussion, that metastases in cancer may take place through the medium of the blood vessels as well as the lymphatics. I speak of this because I have a section from a small carcinoma of the pylorus which had been worked out serially. One of these sections which I have gives a beautiful demonstration under the miscroscope of cancer cells breaking into a blood vessel and their distribution within it.

This brings us back, practically, to the only thing we know of cancer, as mentioned by Dr. Graham, viz., in the beginning cancer is a local disease, and the greatest crime the average practitioner of medicine is committing today is waiting and advising patients to wait until this destructive process has reached a period where it has gotten into the blood vessel and every heart pump sends the cancer material to other portions of the body. We never can reduce our mortality in the time that is coming, when we hope to know what cancer is, until this thing is recognized by the men who see these cases early or first. Right along this line, carrying out the suggestions made by Dr. Mammen of getting a section of a suspected malignant growth for the purpose of microscopic examination, we open up the small vessels and thereby risk a greater dissemination of the cancer. We certainly do not improve the local conditions by removing a section of tissue for the purpose of microscopic examination to determine whether the pathological process is benign or malignant.

In the paper of Dr. Mammen there was one thing left out on diagnosis of cancer of the cervix, which I consider important. It is this: The mucous membrane of the cervix is not freely movable.

**Dr. Carl Wagner, of Chicago.**—I would like to speak on the question of metastasis as well as its importance upon surgical interference. We know that some cases of carcinoma of the breast and likewise of the stomach successfully operated upon succumb shortly after operation from the well-known complex symptom of carcinomatous cachexia, because there had in some other organ previously existed a metastasis. At the same time, adjacent lymphatic glands around the stomach or in the auxillary region were apparently absolutely normal at the time of the operation, or found so even at autopsy. This means that we must try to find better means of diagnosis of metastatic tumors, and also make proper and more frequent use of them before we subject our patient to the ordeal of operations which turn out useless on account of overlooked metastases.

In this connection I would like to mention a new feature in the question of diagnosis of metastases, which has heretofore, in spite of the fact that its birth dates as far back as 2182, received but only too little attention. I have reference to metastases in the eye, in which organ the choroid membrane is the seat of the metastases.

This special feature of metastases should be of great interest to that surgeon to whom falls the lot of operating for carcinoma of the stomach and the breast, as most of the reported metastases in the eye originated from a primary tumor located in the stomach and breast. In 1892 I worked out the anatomy and pathology of this kind of metastasis, and published it in 1891 in Heidelberg, under the title of "Metastatic Tumors of the Choroid Membrane." In the study of many hundreds of sections of the choroid of one particular case (Case 15), and of the 14 cases reported up to that time, I was able to show distinctly the difference between a metastatic tumor of this tissue and a primary one. The topographical anatomy of the gross pathological condition of these cases distinguishes them sufficiently as metastatic from the 258 primary ones of Fuchs, of Vienna.

Clinically, they make, as a rule, manifestations which enable us to make a perfect diagnosis. This is especially true in cases in which the existence of another suspected malignant tumor in another part of the body at the same time is recognized. The ophthalmologist may profit by this part of pathology, to make out of the finding of such a condition a diagnosis of a primary tumor located in some other part of the body which may never have made any manifestations, as Case 15 of my monograph demonstrates.

I therefore make a plea, that, first, every case of malignant tumor should be carefully examined ophthalmoscopically, and, if possible, by an eye specialist, or at least some questions put with regard to the condition of eyesight or occasional headache. The former should become imperative, if in such a patient the least complaint of eye trouble has been made; and, secondly, that at all autopsies of bodies succumbed to malignant tumor, the eye should receive as much attention as the kidneys or the heart, in order to enlarge our scope of knowledge on this new and important question.

The following are the principal guiding clinical symptoms:

1. We find in most cases hypermetropia, which becomes more pronounced the longer the tumor has existed (such tumors are known to have existed for over two years.)

2. Entire loss of eyesight of one eye.

3. The left eye is the one of predilection on account of the relation of the large blood vessels to the eye, analogous with those to the testicle, and is always affected first in case both eyes are affected. The transmission of the disease from one eye to the other takes place by the route of the chiasma.

4. Pain in the eye, in the forehead, and especially around the region of the temple, which symptom, however, is not a constant one, and not always present in the early stages of the disease.

**Dr. Wm. Allen Pusey,** Chicago: I do not think the occasion should be allowed to pass without someone challenging the statement of Dr. Percy concerning the danger of removing specimens for examination from carcinomas. The danger that exists of the spread of carcinoma from removing superficial sections for examination, is absolutely nil, and there is in my opinion no objection whatever to the procedure but on the other hand very weighty reasons for it. The diagnosis of carcinoma is an exceedingly important matter to the patient and it is difficult enough at times to get patients to allow us to take sections without throwing any hypothetical objections in the way. It is of supreme importance to the patient if he has carcinoma for him to find it out, and it is equally important if he has not carcinoma to have that definitely and positively decided.

Dr. Bevan, in his remarks, referred to the use of X-Rays, and in the main he and I quite agree. He says that the use of X-Rays for cutaneous carcinoma is a justifiable measure. I would state it differently, and say that the use of X-Rays is the method of preference in the treatment of cutaneous carcinomas of such character that a conservative surgeon in operating would not take out the contigious lymphatic glands. Take, for example a deep seated carcinoma of the lip, in operating upon which a conservative surgeon would certainly take out the glands beneath the jaw. That is not a proper case for the primary use of X-Rays. Other cutaneous carcinomas, however, in which if a surgeon were operating he would not remove the lymphatics at the same time, are I believe preferably treated by the use of X-Rays, and any number of cases can be marshaled in strong support of this statement.

As to the treatment of other carcinomas than cutaneous carcinomas I am only too willing to leave all of the cases to surgeons that they can handle. But there are large numbers of cases before which surgery is absolutely hopeless, and in these cases the patients are entitled to an attempt at relief with X-Rays. Some of them get it, and many of them get marked increase in comfort. In such cases as these the surgeon fails in his duty if he does not give his patients the benefit of X-Rays.

If I understood Dr. Bevan correctly, he questioned whether X-Rays have added anything of value to the treatment of carcinoma. That is I should say, a question of the use of words. Even in my individual experience with X-Rays in treating carcinoma I have had cases referred to me by our most distinguished surgeons that had failed of relief from surgery, and that were hopeless of further benefit, and I have seen these cases get well under X-Rays and stay well. Whether that is an addition of any value to the treatment of carcinoma is purely a question of the meaning which we attach to the word value. I am willing to make the dogmatic statement that it is an addition of exceedingly great value.

As to the deep seated effect of X-Rays, I think this proposition must be admitted, that we can offer nothing definite as to the curative effect of X-Rays on deep seated carcinomas within the cavities of the body. But there are unquestionable facts to prove that X-Rays do affect carcinomas well beneath the surface. For example, Dr. Wyllys Andrews referred to me about two years ago a case of primary carcinoma of the breast with involvment of the axilla and of the lumbar spine. It was, of course, understood that the case was hopeless, but on the family's insistance the treatments were given over the breast until the patient's death. We obtained a post mortem examination, and practically no carcinoma was left either in the breast or in the axilla. I have had a similar experience in a case referred to me by Dr. J. B. Murphy, in which we obtained a post mortem and in which the carcinomatous tissue in the breast had been replaced by connective tissue. These findings are not my own; they were made by competent pathologists and they prove (prove is used advisedly) that we can produce effects upon carcinomatous tissue at a considerable depth beneath the surface. With these facts before us we are not only justified, we are in duty bound, to make every possible effort at treatment with X-Rays of many cases of carcinoma before which surgery stands helpless. Once in a while we are rewarded with a striking result.

**Dr. Albert Goldspohn,** of Chicago: It has been said by Dr. Murphy that the surgeon can prevent carcinoma of the stomach, and if this be so, he ought to have an opportunity to do so namely by resorting to gastroenterostomy.

With regard to carcinoma of the uterus, it is also true that surgery can prevent it in some degree, if that surgery is properly directed. This refers to the numerous operations which have been performed for pathological cervices, particularly for so-called lacerations of the cervix. Serial sections, microscopically examined, have shown that carcinoma of the cervix begins most frequently some distance up in the cervical canal, not exactly at the external os, but farther than that, chiefly from retention cysts. The cervical mucous glands being constricted at their mouths by the existence of catarrh for some time, become the seat of retention cysts. It is from these cysts that carcinoma occurs more frequently than from any other source in the uterus. Next in frequency it occurs at the site of so-called erosion that is exposed within the vagina. And, thirdly, least of all, we have carcinoma of the body of the uterus. If a lacerated cervix, or any cervix, is regarded as pathological and needs operating upon, amputation of the cervix is the operation indicated, and not trachelorrhaphy or the Emmet operation, which is irrational on many grounds, because it consists in sewing together hopelessly diseased tissues, that are not needed, instead of removing them.

The thing that declares a portio vaginalis to be pathological is not so much some remaining notch upon it, but the indurated condition of the cervical tissue proper, and amputation of that is a loss to no woman, while the operation, if thoroughly performed, would take away parts from which carcinoma of the cervix occurs most frequently.

**Dr. Murphy** (closing the discussion.)—I desire to thank the gentlemen for their extended discussion of this subject and to call attention again to the emphasis which Dr. Futterer placed on certain elements in carcinoma, namely, the metastatic cellular elements and the changes produced in the epithelial cells by repeated mild irritation. In the study of vegetable life we find that wherever epithelium is transplanted, the epithelial products are uniformly the same, regardless of the sap. We can see in the transplantation or grafting of the common orange that fruit is the product of that epithelium. The argument advanced by Dr. Futterer was, that no matter where the epithelium was transplanted, it produced uniformly the same type of epithelium and the tissue cells in the metastatic area play no part in the new formation, the epithelial cells occasionally underwent transmutation. Again, if the carcinoma were due to a parasite, it should produce in the new tissue in which it was transplanted, karyokinetic changes in the cellular elements of that tissue, not alone modifications and karyokinetic changes in the epithelial cells, producing uniformly an epithelial product, which is an important factor in metastases following primary carcinoma and has no analogy in parasitic or bacterial metastases.

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**Dr. Warren,** of Orchardville, has located in Cantrall.

**Dr. Thompson,** of Nilwood, has gone for a three weeks' vacation trip to British Columbia.

**Dr. Julius W. Oswald** 640 Cleveland Ave., has been sued by E. R. Halm for $50,000 damages alleging the alienation of the affections of Mrs. Halm.

**Dr. James P. Lynch,** 3044 Wentworth Ave., Chicago is one of the founders of a new party recently chartered under the name of the Continental party of the United States of America.

**Oak Lawn Retreat,** Jacksonville, is to be enlarged by the addition of the Colonial Inn to its equipment. It is understood that the proprietors have closed a large contract with the U. S. Government for the care of the insane.

**Dr. E. F. Baker,** Inspector of the State Board of Health reports smallpox at Belleville. He says the situation is alarming but the authorities are awake to the gravity of the situation and are taking all measures possible to check the spread of the disease. It is also reported that smallpox exists at Chatsworth and he has gone there to investigate the case.

**Sir Felix Semon,** physician extraordinary to King Edward VII, was the guest at a dinner given at the Chicago club recently. The host was the Chicago Laryngological association and Dr. E. Fletcher Ingals presided. Sir Felix is on his way to St. Louis.

An Omaha doctor successfully treats lockjaw by placing his patients in a refrigerator. It is the resultant chattering, doubtless, that loosens up the jaw.—(Chicago Tribune.)

# SYMPOSIUM ON ECLAMPSIA

## THE PATHOLOGY OF ECLAMPSIA.*

BY FRANK W. LYNCH, M. D., CHICAGO.

For many years the fundamental anatomical changes in eclampsia have been a matter of dispute; the lesions have been so numerous and so protean, that it was long thought impossible to be certain of the characteristic pathological anatomy. And although few subjects have attracted more attention, the hypotheses advanced as to the etiology and pathology have been so conflicting, that Zweifel has indeed aptly termed Eclampsia as "the disease of theories."

In earliest times the disease was considered a nervous disorder peculiar to pregnancy, and attempt was wade to correlate the anatomical alterations of the nervous system with the clinical symptoms. A definite advance from this standpoint was made following the demonstration by Rager in 1839, and Lever in 1842, of albumin in the urine of women suffering from this disorder. Due largely to the teachings of Frerichs in 1851, and Braun in 1857; it was generally believed that the fundamental lesions were identical with those of nephritis, and the terms eclampsia and uraemia came to be synonymous, and indeed still remain so to the great mass of practitioners.

Soon however conflicting evidence accumulated. It was found that only a very small proportion of pregnant women suffering from chronic nephritis developed eclampsia. Furthermore, many investigators showed that convulsions may develop without preexisting albuminuria.

Prutz, in Königsberg showed that in only 8 of 22 cases were the kidney lesions sufficiently marked to cause uraemia in the nonpregnant condition. Similar findings by other observers made the theory untenable, and at present it is no longer believed that the kidney changes are primary.

We are indebted to Schmarl for most of our knowledge of the pathologic anatomy of the organs. He, following Jürgens & Klebs, and Pilliet, who had pointed out the existence of a haemorrhagic hepatitis in certain cases, carefully described the lesions in 17 women dead of eclampsia, and directed our attention to the liver changes which were constantly present, and which at this time must be regarded as most characteristic of the disease.

At autopsy the body of an eclamptic dead early in the disease, presents no characteristic features. Oedema is not always present. Jaundice is sometimes seen, and rarely are there petechiae and ecchymoses of varying size and number. The face is generally puffed and swollen, as is the tongue which frequently shows injuries, self inflicted during the convulsions.

As has been stated, the most characteristic lesions of the internal organs are found in the liver. Generally this organ is enlarged and swollen although rarely it is decreased in size. Bar, in 17 cases found the weight to be

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| 1900 grains or more | 6 cases |
| 1700-1900 grains | 6 cases |
| 1500-1700 grains | 3 cases |
| 1500 grains or less | 2 cases |

The color is not constant. Generally pale, it may be jaundiced, and is most frequently mottled with areas of reddish brown discoloration. These vary in size and number ranging from pin point size to that of a mans palm. Haemorrhagic foci have been noted beneath the capsule. As a rule the tissue is firm, although it has been found to be friable and in some instances so soft as to indent by pressure of a finger. On section areas of discoloration may be seen as beneath the capsule.

Histologically these may be recognized as areas of necrosis into which extravasation of blood may have occurred. They are most frequently found in the neighborhood of the smaller portal vessels. The necrotic border is sharply marked, and there is usually no evidence of acute inflammation. The biliary canaliculi appear normal. Tracing the process in favorable cases we find thrombi in the smaller blood vessels, about which the liver

*Read at the 54th Annual Meeting, May 17, 1904.

cells have become more vacuolar; the nuclei disappear, and the groups of cells undergo a change similar to that of hyaline degeneration, into which haemorrhage finally occurs. These lesions were noted by Schmarl in 71 of 73 cases. Bouffe de Saint Blaise in 42 consecutive cases, and by hosts of other observers, although in the light of present knowledge we cannot consider them as the primary cause of the disease. Personally I have found these lesions in 10 autopsies. In some cases changes comparable to those of acute yellow atrophy have been described, and Stumpf twice demonstrated the presence of leucin and tyrosin in the liver.

The kidney almost constantly presents pathological changes, generally those of an acute nephritis with most marked alteration of the epithelium of the convoluted tubules. Microscopically the kidney is seldom as congested as when death follows acute nephritis from other causes. Frequently we find that the acute process is engrafted upon a chronic form. Haemorrhagic points are infrequently described. As regards the frequency of the findings, Prutz noted kidney changes in all but 7 of 368 cases collected from the literature, although he regarded these as secondary in the great mass of cases: Ohlshausen described 2 of 37 cases in which no lesions could be made out.

Halbertsona in 1876, called attention to the fact that the ureters are often enlarged and dilated, and was inclined to attribute the production of the disease to this condition. His argument was largely impaired however, by the work of Ohlshausen and Stadtfeld who found such conditions in non-eclampic puerperal women, and the observations of Prutz, Herzfeld and others, tends to the view that this lesion is not of fundamental importance.

No definite changes are constantly present in the alimentary canal, although congestion and small haemorrhages are frequently noted in the stomach and small intestine. More rarely these extend to the larger bowel. Haemorrhagic foci are sometimes seen in other organs not yet considered, notably the heart, spleen and thyreoid.

The lungs commonly are oedematous, sometimes pneumonia has developed, yet these are generally considered terminal conditions. Such pleural haemorrhages are infrequently seen. The presence of syncitial giant cells in the capillaries of the lung, to which Schmorl attached considerable importance, is no longer regarded as peculiar to eclampsia, since they are constantly found in the pregnant condition.

No characteristic change is found in the genital organs. It is interesting to note that the common white infarcts are seldom numerous or of large size in the placenta. Red infarcts are frequently seen although these are also found in other diseased conditions.

Many lesions of the foetus have been described, chiefly of a haemorrhagic character, yet it must be borne in mind that such are the common findings when the child dies during delivery. Bar however believes that cell degeneration in the liver and kidney is a common finding. The subject of foetal pathology however is as yet an unexplored territory, and personally I have never been able to convince myself of foetal changes which differed in marked degree from those in non-eclamptic cases.

The results of the examination of the central nervous system are variable and many statements have been made concerning the anatomical findings. Oedema, hyperaemia, thrombosis and apoplexy have been described although none are constant and many cases present as normal.

The eyes as a rule present no gross lesions of the retina. Albuminuric retinitis is rarely seen in cases in which eclampsia develops suddenly, and when present should be regarded as a sequence of pre-existing nephritis.

We have thus seen that the lesions are quite frequently of a haemorrhagic character, most marked in the liver. This strongly suggests the presence of toxins circulating in the blood.

Thus far work on the blood has yielded no satisfactory result. Ammonium carbamate, whose presence was suggested by Frerichs, has not been found. The amount of urea

varies in cases, being largely dependant upon the condition of the kidneys, yet Herter states that the percentage is not increased with the appearance of convulsions. Stumpfs cases are of interest in this consideration as he twice found methaemaglobin in the blood. Kollmann thought he demonstrated an unusual amount of globulin in the blood serum, and Massen has described an increase in leucomains. Thus far there is no convincing proof of specific bacteria. Experimentation has also failed to show an increased toxicity of the blood serum.

The results of various observers are most conflicting and as Eden has pointed out, unless separate and definite toxic bodies can be obtained from the serum, experimentation along the lines employed in the past is certain to be vitiated by sources of a serious error. During the winter of 1902, I sought to find changes in the blood by the newer methods of Ehrlich, yet none could be proven by the grosser methods. The serum of both eclampsic mother and child constantly reacted in the normal manner. We noted a slight leucocytosis in some cases, but were unable to draw conclusions as to the relation between the number of leucocytes and the prognosis. The eclampsic blood froze within the normal limits as did that of the child. In one case in which eclampsia developed following chronic nephritis, the blood was found to possess a greater degree of gross alkalinity than normal.

*Urine.* During the eclamptic attack the urine is much diminished in amount, and contains much albumin and many tube casts. Albumin alone cannot be regarded as indicative of approaching eclampsia. Many have shown its presence in cases progressing normally, and Little during my service at the John Hopkins Hospital in Baltimore, found that upwards of 50% of cases had albumin in pregnancy or labor, his series embracing careful records of urinalysis of 1000 women. Nor can the presence of casts alone be regarded as pathogomonic, for approximately 12% of these women had casts and albumin at one time in pregnancy, and a greater per centage in labor. During the last few years much importance has been attributed to the diminished amount of urea in the urine of cases threatened with eclampsia. We know however that low urea is not always associated with eclampsia, for many of us have seen cases in which the disease developed with urea approaching the normal amount of 22 grams per diem, and others in which it did not develop with a total of 10 grams or even less. Practically however the combination of casts, albumin, and low urea makes a dangerous combination.

During the past year work upon the metabolism of normal pregnancy and eclampsia has been completed by Whitney and by Slemons. The work of the latter is especially brilliant and instructive. Confirming the observations of Helouin, he has shown that the relation between the total nitrogen and that excreted as urea in the urine is altered by the presence of a living foetus, so that in pregnancy the urea nitrogen represents but 86 or 88% of the total. He shows however that the condition of a pregnant woman threatened with eclampsia cannot be determined by the total nitrogenous substances eliminated in the urine, but may be indicated by the relation existing between the various nitrogenous substances. This worked out entirely entails a tremendous amount of labor and for practical purposes we may be content with the relation of the urea to the ammonia in the urine voided by a normal bladder. Thus, low urea may be compensated by high ammonia (8% or more). Such a condition indicates that the patient is toxic but nature is endeavoring to neutralize the poison. While ammonia of 3% or less, associated with low urea indicates a serious condition. This we believe is a discovery of greatest importance, and profiting by it, we may be able to prognose the appearance of convulsions, and take the steps necessary to prevent them.

What is the cause of the convulsions is not yet known. With the recent work as to the causation of diabetic coma in mind, it is not too much to hope that further work in this field will give not only added pathological knowledge but a clear conception as to the etiology of this most obscure disease.

# THE OPERATIVE TREATMENT OF ECLAMPSIA.*

BY CHARLES SUMNER BACON, M. D., CHICAGO.

In threatened eclampsia before the outbreak of convulsions operative interference is sometimes necessary. The indications for such interference may be either maternal or fetal. If in the later months of pregnancy well known symptoms of intoxication occur that arise from the pathological condition characteristic of eclampsia and if these symptoms persist in spite of diet and the use of eliminants like purgatives and diaphoretics and other appropriate treatment the termination of pregnancy may become necessary. While not entering into a discussion of this indication more in detail I will say that it should receive greater attention than is ordinarily given it. I do not believe that the emptying of the uterus is often required for I think that radical appropriate treatment and most important of all rest in bed will generally tide the patient over the dangerous period; yet certain cases will arise especially when the eyes are involved or when there is much distension of the uterus where operation will be the only way to prevent convulsions.

It is well established that the fetus often suffers from an eclamptogenic intoxication. Pathological anatomical changes occur in the liver, kidney, brain, etc., similar to those found in the mother. This is probably the reason why there is such a large number of still births from eclamptic mothers and why so many children die during the first days of life. It might seem reasonable to hope that a child removed at 35 or 36 weeks would be in better condition than one exposed longer to deleterious influences of the maternal poison. Moreover if a child could be safely removed at this time it might escape the danger of a hasty operative delivery. This consideration, while not furnishing an independent indication for labor, may be of supplementary value in making a decision when the condition of the mother is such as to excite apprehension.

If termination of pregnancy is decided upon two methods should be considered, (a) the induction of labor and (b) the removal of the child by Caesarian section.

The principle that should determine the method of inducing labor for threatened eclampsia is to choose the operation that will least disturb the patient. It is not unlikely that the disturbance of labor is frequently the immediate exciting cause that brings on a convulsion. Hence one should avoid any operation that might have the effect of a prolonged and severe labor.

In accordance with this rule in cases of hydramnion, twins or other conditions where the patient suffers on account of abdominal distension one would bring on labor by rupturing the membranes. In other cases the Krause method of using a bougie, if properly employed is efficient, safe, reasonably prompt and causes no more disturbance than normal labor. The bag or manual dilatation of the cervix is not often needed and while by its use labor can be completed in much shorter time it disturbs the patient much more and requires sometimes long continued anesthesia.

The proposition to remove the child in these cases by opening the uterus is a new one, but one that promises several interesting advantages over the induction of labor in certain cases. The danger of convulsions occurring during induced labor is avoided. Other dangers not as yet fully recognized like the production of organic lesions of the liver and kidneys and myocardium are present in case of any labor in an eclamptic woman. These would be avoided also by such an operation. Moreover the chances of the child are of course improved in this way.

An abdominal Caesarian section would be employed in case of some obstruction in the pelvic obstetrical passage, like contracted pelvis, etc. Otherwise the new operation of vaginal Caesarian section would be performed because it is attended with less shock and leaves no external scar.

I have recently reported a case of this kind that well illustrates the points just made. In brief the case was as follows:

*Read at the 54th Annual Meeting, May 17, 1904.

The patient had severe convulsions in her first labor which led to the birth of a dead child. Four years later during the latter half of her second pregnancy symptoms of severe eclamptogenic intoxication appeared. In spite of rigorous treatment the albumen increased to 35% by examination with the centrifuge, headache became very severe and vision very greatly impaired. I had hoped to carry the pregnancy to the 35th week on account of the child but the appearance of the eye symptoms and the urgent advise of the consulting ophthalmologist, who represented that continuance of pregnancy involved great risk of permanent loss of vision led both Dr. Frank B. Eare who was associated with me in the case and myself to decide upon interference in the 31st week. For reasons given above vaginal Caesarian section was chosen and the child delivered in fair condition. Although it was placed in an incubator and well cared for it lived only about 40 hours. The condition of the mother began to improve a few days after the operation and at the end of two months she was in fair state of health.

After the occurrence of convulsions rapid operative delivery is indicated when possible i. e., when it does not in itself involve greater danger than that presented by the eclamptic condition. While in perhaps ⅓ of all ante or intra partum cases convulsions do not cease immediately after delivery and in 20 to 25% of all cases they first appear in the puerperium yet as the disease is due to the connection of the egg with the maternal organism it is desirable to separate it as soon as possible. It is also true that in hospitals where active interference has been instituted, the mortality from this affection has diminished. In other words the clinical results prove that proper interference is beneficial. Moreover the hope of saving the child may have some influence in deciding upon the operation.

In order to achieve the hoped for results from operative interference it is necessary that the best facilities for performing such operation be secured.

For any of the operations included under the term *accouchement force*, it is necessary that the operator have a table, good light, necessary instruments, assistants, aseptic preparation and the requisite skill. All these essential conditions can be obtained much better in a hospital and it is therefore desirable to secure the advantages of a hospital whenever possible. The danger of transporting a patient two or three miles is not to be overlooked but it is more than counterbalanced by the facilities for good work.

The contra indications to operation, when the patient is not moribund is found in the absence of or impossibility to secure the necessary facilities. It is safer to combat the dangerous symptoms with morphine and promote elimination by purgatives and sweating and perhaps bleeding than to attempt dangerous operations with an uneffaced and undilated cervix without proper conditions.

All operations should be made under complete anesthesia. The good results now obtained from active operative therapeutics are due in great part to the general observance of this rule. Without anesthesia painful manipulations are apt to bring on convulsions and in any event the struggles of the patient and the shock to which she is exposed have a deleterious effect on her strength and especially on the already overburdened and weakened heart. Before the general use of anesthesia in these cases operations often hastened the fatal issue and so came into disrepute from which they have only emerged within the last 10 to 15 years.

The choice of the anesthetic is in dispute. Personally I believe that ether is preferable to chloroform. Some give preference to chloroform because in eclampsia where there is almost always kidney disease they believe chloroform less injurious. The statement that ether is more dangerous than chloroform in kidney disease has been passed along from one writer to another but as in many similar instances very few have taken pains to confirm it by personal experiment or careful and sufficient study. Lately a number who have studied the subject have come to doubt the statement and I believe it should not be given much if any weight. On the

other hand the much greater safety of ether in case of heart strain and exhaustion makes it especially indicated in eclamptic cases. Lesions of the myocardium are found very frequently in post mortem examination of patients dying from the disease and may be considered one of its characteristic pathological changes. This diseased heart is put to greatly increased strain during a convulsion. It is evident that the anesthetic that works the least harm to the heart should be chosen for an operation and I feel confident that ether will always serve us best.

The remarks concerning an anesthetic apply only to that used for operation and not to an anesthetic to control convulsions. I believe that anesthetics have no place here, that morphine is much safer and that the frequent long continued use of chloroform for this purpose is very bad practice.

To consider now the operative means to be employed in different conditions *ante partum* and *intra partum*, we may begin with that condition about which there is no difference of opinion, namely when the cervix is completely dilated. Here all are agreed that the child should be delivered immediately or as soon as the patient can be anesthetized and preparations made for the operation. In case of head presentation, forceps will be used and in a breech, manual extraction will be employed. If there be obstruction in the passage due to contracted pelvis or a tumor or if the passenger be abnormally large or deformed the case will be managed in accordance with the rules that apply to the management of dystocia due to these causes.

When the cervix is effaced but only slightly or partially dilated we have a condition where our facilities for work may influence our procedure. We have the three methods of dilatation, incision, digital and bag dilatation. The first is accomplished in a moment and allows immediate extraction. It however requires good assistance for its proper execution and for the repairs that are quite likely to be needed. Hence it should only be attempted in a hospital or where equally good conditions can be secured.

All preparations for the operation, for repairs and for control of hemorrhage having been made the patient is placed anesthetized on a table in a good light and large retractors inserted in the vagina to expose the cervix. The posterior lip is first caught with two artery or vulsellum forceps, each side of the median line and then cut through to the vaginal junction with long angular scissors. The anterior lip is then held and incised in the same way. This prepares the cervix for forceps or turning and extraction. The greatest danger is due to the unprepared state of the vagina which in primiparae is apt to be badly torn during the forcible delivery. If this danger can be minimized or the injury well repaired this operation may promise the best results for mother and child.

Where assistants and other facilities are lacking we must rely upon digital dilatation or metreurysis or both combined. For these operations the patient should also be anesthetized, shaved and cleaned and placed on the table. Digital dilatation may be effected by using the fingers of one hand according to the method of Harris or by the fingers of both hands according to the Edgar method. In the first case the hand is very carefully sterilized and perhaps covered with a glove and the half hand introduced into the vagina. The forefinger is then pushed through the os. It may be necessary to make a preliminary dilatation with a branch dilator. The forefinger is withdrawn to its tip and the second finger inserted along beside it. After these are carried through the os the distance of one to two inches they are separated as far as possible. They are then withdrawn and the third finger added to the other two. After separation and dilatation as before the fourth finger is added and dilatation completed as far as possible. Then the whole hand is carried into the vagina and the thumb with the fingers pushed through the os to the metacarpophalangeal articulations and the fist closed. The average fist measures about 27 cm. in circumference which is about $\frac{4}{5}$ of the circumference of the average fetal head.

By the Edgar method after introducing the forefinger of one hand the corresponding finger of the other hand is inserted and the os pulled open as in dilating the sphincter ani in an operation for hemorrhoids. Later two or more fingers of each hand may be used in the same way.

By neither of these methods is the cervix opened completely as in normal labor. The tissue is not pulled up into the lower uterine segment and a rim remains that is liable to tear during extraction. However if one can take time to complete the dilatation as well as possible, extraction may be made without great risk. The time required will vary greatly depending upon the amount of the spontaneous dilatation that exists at the beginning and the thickness and distensibility of the cervical tissue. In favorable cases one may succeed in 15 to 30 minutes while frequently 1 to 2 hours or more may be required.

The metreunynter or uterine bag opens the cervix in a way more nearly approaching the normal but its use requires the help of one or more assistants. The conical, inelastic, vulcanized bags of Voorhees are most to be recommended. With the patient in position as before described, the cervix is seized with a vulsellum forceps which is held in the left hand. The right half hand is then introduced into the vagina, the forefinger carried through the os and the membranes ruptured. Then the empty folded bag is pushed through the os with the finger and held in place with the fingers in the vagina until it is filled with sterile water by means of a bulb or fountain syringe. The hand is then withdrawn and the tube clamped or tied. Some traction is now made on the tube until the bag is pulled through the os. A larger bag with a circumference at the base of 28 to 30 cm. is then introduced and used in the same way. This method generally takes considerably longer than the other and it may be desirable to let the patient come partly or entirely out from under the influence of the drug during its use.

Recently a strong, powerful, metal dilator operated by a screw invented by Bossi has been considerably used in Europe and very rarely in America. Numerous reports of severe and serious tears have shown this instrument to be dangerous and not to be recommended.

After dilatation or during dilatation if it lasts very long and if the condition of the patient allows it may be well to let her come out of the ether in order that the child may descend into the pelvis and if possible be expelled spontaneously. Generally it is to be extracted by forceps or by version and extraction as soon as dilatation is effected. Of course if the child is dead, craniotomy should be done.

When the cervix is not yet effaced either before or at the beginning of labor the problem of management is more difficult. Cervical incisions are not sufficient and sufficient manual dilatation or metreurysis will generally require many hours.

Such long continued manipulation is dangerous both on account of the anesthetic and the risks of infection and shock.

If the patient be in a hospital and if the physician possesses the necessary skill the vaginal Caesarian section will probably procure the best results. It is much safer than an attempt to extract through a partially dilated cervix, the old *accouchement force*. The patient properly prepared is placed on the table and the cervix grasped anteriorly by vulsellum forceps, one each side of the middle, which are then substituted by traction sutures. A longitudinal incision is then made from a short distance behind the meatus urinarius to the external os through the vaginal mucous membrane. The bladder is then separated from the cervix by means of gauze sponges, the loose tissues between the bladder and uterus yielding easily. The cervix is then cut through on the median line with scissors. As the incision extends upward the edges are caught by vulsellum forceps upon which traction is made to bring more and more of the anterior wall of the uterus within reach. This is split through, the vesico-uterine fold of the peritoneum being pushed up. In this way an opening may be made large enough to admit easily the closed fist through which the head

may be extracted. If the child be at term it may be well to split the posterior wall of the cervix. An incision is made in the posterior vaginal wall, the rectum separated and the cervix incised in the same way as the operation was done on the anterior wall. Sometimes it may be necessary in order to get more room for extraction to make cross incisions in the vaginal wall. Unless the head is in the pelvis delivery is accomplished best by version and extraction. After the birth of the child it is not necessary to deliver the placenta at once. This might lead to considerable and unnecessary hemorrhage and probably require packing of the uterus. If there has been no detachment of the placenta and no hemorrhage from the placental site the cord should be cut short and pushed back with any protruding membrane by a sponge and the repair of the incisions begun. The edges of the uterus wound are caught with forceps as before and pulled down until the upper angle of the wound is in plain view. Then with a well curved needle and strong catgut the wound is closed with interrupted sutures knotted on the inside of the uterus. Before the lower part of the cervix is repaired the placenta must be expressed and any hemorrhage checked by hot uterine injections. The vaginal incisions are closed in the usual way.

If the operation just described is impossible we must choose between giving all of our attention to securing elimination and controlling dangerous symptoms or cautiously assisting labor while attending to the general condition. If the patient is not overwhelmed with the eclamptic poison, if the convulsions are few, the coma not profound and the heart in good condition the first may be the best plan to pursue. Morphine hypodermically in 1/6 to 1/4 grain doses up to 3/4 grain, is the most reliable agent to control convulsions. Profuse sweating by packing or hot air should be secured. Two to four drops of croton oil placed on the tongue will secure free and prompt purgation.

Bleeding from the arm will rarely be required but in desperate cases should be resorted to. The subcutaneous injection of one to two pints of normal salt solution will often have a favorable effect.

Oxygen should always be used to relieve the overburdened heart.

In connection with these measures when the symptoms are more urgent we may induce labor or slowly dilate the cervix. As before stated rapid dilatation and extraction in these cases is impossible and any attempt in this direction is apt to lead to great disaster. The proper way to proceed is to anesthetize and prepare the patient, dilate the cervix with a branch or solid dilator to admit one finger, rupture the membranes and introduce a small Voorhees bag. Then ether should be withdrawn and the patient put back in bed. With careful control of symptoms and care for elimination as outlined above the labor should be allowed to progress until the bag is expelled. Then if necessary the anesthetic should be given again and another bag inserted and again labor be allowed to proceed as before. Finally after the cervix is well dilated or after the effacement is complete and more active dilatation is safe more active measures may be taken to deliver the child.

### Discussion on the Papers of Drs. Lynch, Whitten and Bacon. (Symposium on Eclampsia.)

**Dr. Joseph B. DeLee,** of Chicago.—Mr. President: It is not my intention to discuss the papers which have been presented, but simply to present a very brief analysis of thirty cases of which I have had charge. In looking up my records for these cases, I found in addition to the thirty here reported seven additional cases of eclampsia which I had forgotten. The records of these seven, however, are imperfect; they are mostly cases that were seen in consultation, so that I have not put them in this list. In addition to the thirty-seven cases, there are six cases of patients on the verge of eclampsia, and in whom pregnancy was terminated with a view to preventing the accident, and it was successful in all cases. Whether or not these patients would have had eclampsia, I am not able to say.

The ages of these thirty patients were as follows:

| | |
|---|---|
| Twenty years and under | 7 |
| Twenty to 25 | 11 |
| 25 to 30 | 7 |
| 30 to 35 | 2 |
| 35 to 40 | 3 |
| | 30 |

Of this number, 2 were cases of chronic nephritis; 25 of the women were primiparae.

and when we have so many primiparae as compared with multiparae, the importance of eclampsia in primiparae is easily seen. Five of these primiparaes died, making a mortality of 50 per cent. Five multiparae had two, four, seven and ten children each. One woman with ten children died. She had had a chronic nephritis for years, and probably died of uremic convulsions. Doubtless, it was not a true uremic eclampsia.

Convulsions occurred in 18 at or near full term, after viability of the child, but before term in 7, and in the early months of pregnancy in 5. One woman had eclampsia in the tenth week of pregnancy, she having had sixteen convulsions. This is the earliest case I am acquainted with.

The previous history of the cases has proven interesting. It shows that in nearly all of the cases the women had had some sickness anteceding their eclampsia, which had a more or less direct bearing upon the convulsions. The mother had eclampsia in one case; convulsions present when the patient was a child, 1 case; scarlet fever preceded in 5 cases; other infectious diseases, such as diphtheria, measles, typhoid fever, 2 cases; heart disease, 2 cases; cystitis, 1 case; nephritis, 2 cases; nervousness and ill health (general), 6 cases. No record was made in 9 cases.

It is generally believed that eclampsia occurs less often in pregnancy, most often in labor, and less often in the puerperium.

**Time of Occurrence.**

| | | |
|---|---|---|
| Before labor began, | 10, | 2 died |
| During labor (convulsions began), | 12, | 1 " |
| During labor (convulsions con.) | 3, | 1 " |
| After labor (convulsions began), | 8, | 4 " |
| After labor (convulsions con.), | 5, | 1 " |
| Total deaths in 30 cases, | | 7 |

Albumin and casts were present in all from which we obtained specimens of urine, namely, 28 cases. Ingerslev reported 108 cases without albumin or casts. I do not understand that, and the late Professor Jaggard once made the statement that in no case in his extensive experience was the urine free from either albumin, casts, or both.

The number of convulsions varied from 1 to 37. A woman who had 37 convulsions died, while one who had 30 recovered. One who had 4 convulsions died.

The temperature varied from 101° to 103°. Many women had a temperature of 103°; three had a temperature of 106°; three had a temperature of 106° to 108° all died.

An important point I have emphasized, and desire to re-emphasize today, is this: We have listened to an interesting discussion on carcinoma this morning, and during this discussion, the importance of getting cases of carcinoma early was pointed out, and it was stated that if we could get them early we could do something for them; we could prevent the development of carcinoma recurrences. That is what we want to do in obstetrics,— prevent. It has been said that eclampsia is a disease that flashes out without warning. Eclampsia in all the cases reported here presented a warning of from one day to four weeks before the outbreak of the convulsions. In one case warning was denied. One case, only three hours before convulsion. One case, no record. In 27 cases, warning present from a day to four weeks before labor. Edema of the extremities, severe headache, amaurosis, vomiting, and in many cases albuminuria were determined weeks before the onset of the convulsions.

**The Children**—Non-viable, 5, of which 5 died; premature, 7, of which 1 recovered; 3 delivered alive (died of morphine and asphyxia); 2 died during delivery; 1 macerated.

At term, 18 cases (2 twins), with 20 babies; 2 macerated, 1 died of sepsis after circumcision; 2 (twins) died in labor.

Of 16 children at term and viable, 2 died, 14 lived. Two of the children had convulsions.

With reference to treatment, there was spontaneous delivery in 14 cases; bag of waters punctured in 1 case; in most of the cases rupture of the membranes began the treatment cervix dilated in 14 cases, with bags, fingers, and Bossi dilator. The Bossi dilator, used three times, lacerated the cervix every time, in spite of the fact that it was used in accordance with Bossi's explicit directions, taken from his original paper, and in 1 case the laceration was so extensive that I gave up the use of the instrument.

Regarding **accouchement force** as improving the treatment of eclampsia, it was resorted to in 10 cases, with dilatation of the cervix, incision of perineum, and delivery. Of these 10 cases, convulsions persisted afterwards in 6; they were less severe in 1. Rapid delivery had no effect upon the progress of the eclampsia. The convulsions gradually grew less in severity, although the patients died in the same proportion as in the other cases.

**Deaths and Causes.**

Total deaths, 7, or 23 per cent.

| | | | | | |
|---|---|---|---|---|---|
| 1. | Post-partum eclampsia, | | | temp., 106°, | 1 |
| 2. | " | " | " | " 106°, | 1 |
| 3. | " | " | " | " 103°, | 1 |
| 4. | " | " | " | 28 convulsions, | 1 |
| 5. | Convulsions before, during and after; jaundice, | | | | 1 |
| 6. | Convulsions during and after; nephritis | | | | 1 |
| 7. | Hemorrhagia cerebri, | | | | 1 |

What bearing have these statistics upon the prevalent moot question regarding eclampsia? First, as regards causation. My cases give no information regarding the causation of eclampsia. Recovery of the patient is likely if the fetus dies. We know that when the fetus dies recovery often ensues.

As to the use of veratrum, I cannot give you all the details, but I started out by using it very slowly. I did not believe much in it. There were three cases in which I thought it had a wonderful influence, yet in three others it did not have a bit of effect, and the women died in spite of it.

With regard to venesection, some time ago the older practitioners in this Society converted me to the use of venesection in cases of eclampsia. They all reported such gratifying results

that I resorted to it in some cases, but it did not seem to do the patients much good; some cases died and some cases got well under its practice.

As to the use of salt solution, I have administered it in large quantities in these cases, as I find that small quantities have no effect on eclampsia.

**Accouchement force,** rapid delivery, in my experience has not bettered the results in eclampsia.

I am sorry to be iconoclastic in regard to any method of treatment of eclampsia, but I cannot see any positive and enduring results from any single method at present in vogue.

**Dr. Effie L. Lobdell, of Chicago.**—If we were to take seriously the subject of the first paper (referring to the paper of Dr. Lynch), I think we would throw away the greatest safe-guard we have, that is, the clinical sign of albumin in the urine. It may be it is defective, and does not fulfill all we have been taught regarding it, but that it is still the most practical hint we have on which to base a possible event is still true, and nothing which has been found has been reduced to such an easy method for analysis and examination of such cases as come to us in our emergency work, that we can afford to throw it aside entirely. I have in mind the case of a friend who had eclampsia two weeks ago. The first specimen of urine I had was brought to my office and I made a rather hurried examination, and from the findings advised her husband, who is in a position to call in a consultant, to do so at once, and within four hours from this time the woman was admitted to the hospital, and within four days she was delivered by vaginal Cesarean section.

We have considered what is radical and what is conservative in the treatment of these cases. I believe that the function of the uterus is quite independent of the condition of the eclamptic patient, and that we should not necessarily turn our attention so intently to the fact that the patient is pregnant as to the fact that there are general conditions which call for treatment, and that there must be elimination and encouragement of **all** normal functions, and the fact that she is pregnant is secondary to the other. Out of seventeen cases that I have had, I have allowed four who were from eight to six weeks prior to full term to go to term. I put a less estimate on the value of life itself than the conditions which sometimes follow our meddling; consequently I was anxious to see what would occur if there was no interference. The result was all continued to end of term, and there were two living children out of the four born. I had one case of insanity following in which a chronic nephritis was found to be present.

As to what is radical and what is conservative, I should say that much will depend upon the individual case. If we can allow a woman to go on to term, I believe it is more favorable to her than to hasten delivery. We can easily tell this within two hours if she seems to respond to treatment. There is no system of treatment I have found successful in all cases, but each case must be treated individually and logically. In the case of my friend, labor was terminated by vaginal Cesarean section after waiting four days, but it was brought about by the fact that death of the fetus was noted, and at the same time there was some rise in temperature which called for surgical interference. The patient made a good recovery.

I think we have made a great advance in the care of our eclamptic patients. I would emphasize what Dr. De Lee has said with reference to seeing these cases early. There is undoubtedly a warning, but it is overlooked by the family physician. These warnings are frequently overlooked. These cases are amenable to treatment if gotten early. Unfortunately they come to us very largely as emergency cases, and many times we cannot avail ourselves of a hospital. We cannot always do things in a house that we do in a hospital, so that each case must be taken care of by itself. Examination of the urine should not be done away with until we have better bedside methods of diagnosis and prophylaxis.

**Dr. Denslow Lewis, of Chicago.**—I regret very much that the limited time at our command prevents the full consideration of this subject, which its importance warrants. Most obstetricians agree that chloroform is preferable to ether under all circumstances in obstetric practice. Indeed I think it is generally conceded that possibly 95 per cent of the experienced obstetricians of the world make use of it. About 1887 I reported some cases before the Chicago Medical Society, the year the late Dr. Etheridge was President, in which ether and chloroform were used, first one, then the other, in laparotomies. In many instances we determined albumin in the urine following the use of ether, whereas in every instance in which chloroform was used there were no marked changes apparent by urinalysis.

Regarding dilatation of the os, I did not hear Dr. Bacon speak of Tarnier's ecarteur which, in my experience, is of all forms the preferable instrument to use. It is of great advantage in opening the os, and is much preferable, in my judgement, to the bag of Barnes, or even the Champetier de Ribes balloon, and infinitely superior to Bossi's dilator, which I consider a mutilating and dangerous instrument.

There is one method of treatment that was not mentioned, which is really of the greatest importance. I refer to Cesarean section. Of course most practitioners look upon it as one of the rare operations which should be done under the most exceptional circumstances. If, however, we can see, as I have done in the practice of Olshausen during a period of six months, six cases of eclampsia submitted to Cesarean section, with recovery of mother and child in each instance, it would seem that others might profitably perform the operation under similar conditions. I detailed my ideas on this subject at a recent meeting of the Bureau County Medical Society, describing Olshausen's technique, which is simplicity personified. All practitioners should bear in mind that Cesarean section is an operation of emergency which should be done as frequently as any other emer-

gency operation, and if the operation is performed before the woman is exhausted or infected the chances of recovery are often superior to the usual procastinating methods now in vogue.

**Dr. William K. Newcomb, of Champaign, Illinois.**—I have nothing to add to the excellent papers, only Dr. Lee's discussion touched upon one point regarding which I have had a rather unique experience, and that is the point of heredity in eclampsia. I have had a case of eclampsia in a woman, a primipara, twenty-two years of age, whose two paternal aunts had eclampsia, one of whom was treated by venesection and recovered; the other died. The mother of the patient had eclampsia during her fifth pregnancy at the seventh month, was delivered of a dead fetus, and mother recovered. A cousin of the patient had eclampsia in the same house three months after my patient died from it. The people on both sides were large, plethoric, florid, and of gouty diathesis. The mother of the patient who died has since developed a gouty affection of the joints, from which she is entirely crippled.

**Dr. Rudolph W. Holmes, of Chicago.**—I think there should be a clear differentiation made between the uremic state in pregnancy and the eclamptic; when a woman is uremic, and all approved methods of treatment fail, then the question of inducing labor should be considered. One should consider the use of the catheter, instrumental dilation to secure a sufficient opening for the passage of a bag, and then waiting for spontaneous birth or eventually instrumental delivery. In grave cases of uremia one would consider radical rapid delivery. In the eclamptic stage, however, there are two things to be considered: one, to treat the woman conservatively, and the other, to operate. We would treat a woman expectantly who has one or two or more convulsions that are not severe, where there is an interval between the attacks, the woman is not in deep coma, and rapidly regains consciousness, and whose pulse is not rapid, under 100, and still of good tension; and her emunctories stimulated into activity. On the other hand, when a woman has repeated convulsions, in whom coma is deep and persistent, with no apparent amelioration from the tentative measures that are applied, then I believe a radical rapid delivery is the operation of choice. The object is to get such a woman delivered as quickly as possible, with the least irritation. If a catheter be used in such a woman as that, she is exposed to rythmic irritation from the uterus. If a bag is introduced, the same objection holds. We cannot keep a woman anesthetized anywhere from one to twenty-four hours, and in such cases of emergency I believe the proper thing is to deliver the woman either through the vagina by the rapid hand dilation of Edgar, of Harris, or by the Bossi dilator; I do not believe that the exponents of the Bossi method are strictly honest in their declaration that there were little or no lacerations in the cases reported by him. Any rapid method of dilation has a great danger from extensive lacerations, which too often are unavoidable at the hands of the most expert.

With regard to vaginal Cesarean section, perhaps it had better be reserved for those cases with rigid os, especially where hospital facilities are available.

**Dr. H. W. Chapman, of Whitehall.**—I would like to say a word or two in regard to a method of rapid forced delivery that has been useful to me. It is one that was demonstrated to me by the late Dr. David Prince, of Jacksonville. I saw him deliver a woman by this method. The method was described in the American Journal of Obstetrics I think several years later. Credit was not given to Dr. Prince, but so far as I know it was original with him. Under profound anesthesia the hand is introduced into the vagina; the forefinger inserted into the os, and sufficient dilation made by pulling around to get the second finger in. As soon as the second finger is inserted, the thumb enters as a wedge between the two fingers. (The hand, after being placed in the vagina, is not removed until it comes out with the child's leg or legs.) The thumb is withdrawn from between the fingers. A third finger is inserted, and the thumb again inserted between the index and second fingers. The thumb is again withdrawn, the little finger inserted, and the thumb again inserted in the same manner between the index and second fingers. One hand is now passed into the uterus, seizes a foot or the feet and version is performed. As the hand comes out, an effort is made to make it as large as possible. It descends with the child's legs, traction is not made after the head reaches the superior strait. Bulbit is made to engage by pressure from the outside. Forceps may have to be used later. It is a great satisfaction to be able to cope with such a case, and effect prompt delivery without having to have a very large array of instruments and apparatus. By this method it is possible to deliver even a primiparous woman in a very short time.

**Dr. Wm. H. Maley, of Galesburg.**—I want to call attention to the fact that I believe in the cases that have been reported, most of the speakers have had hospitals, with plenty of assistants, nurses, and instruments at their disposal. When a physician is away from the city, away from a hospital, from nurses and instruments, and is confronted with a case of eclampsia, what is he to do? Send the patient to Chicago, or send her to the city for assistance, or does he go to work and with his hands and instruments immediately begin to deliver that woman? I wish to ask if that is not a rational procedure, and if that is not what a physician caught in such stress should do as quickly as possible?

**Dr. Lynch (closing the discussion on his part).**—I regret that I was misunderstood in regard to the importance of urinary examination in cases of eclampsia. I really did not know that there was anything in the practice of medicine especially easy, nor do I think the determination of the urea nitrogen by most of the modern processes is an entirely easy proposition. I think the importance of albumin is

absolutely thrown out by the fact that we may have albumin, we may have casts, we may have a diminished urea, and yet have no eclampsia, and this is merely one of the accompaniments of the disease. It is one of the manifestations in the majority of cases. In 51 cases of eclampsia I have examined the urine personally, and in all cases I saw albumin coagulate in the tube for hours. The lesions at autopsy in many of these cases are indicative of Bright's disease, and I really think it is a mistake to insist upon the importance of this condition which is recognized as an accompaniment of normal pregnancy.

In speaking of the Bossi dilator, it is a rather interesting fact, that this instrument, which is dangerous in the hands of most of us, was described two years before Bossi described it, by a physician in North Carolina, whose name, unfortunately, I have forgotten. A diagram of the dilator appeared in a local medical journal published in North Carolina.

There is one other point I would like to speak of in closing the discussion, and that is the relation the child bears to the prognosis of the disease, that is, where the child is alive or dead. The ammonia curve is influenced by the child, and it is said that pregnancy is responsible for the eclampsia. This curve is low in pregnancy; in the early months it goes up higher, and after labor it falls to normal. It also falls to normal when the child dies in utero. I would not like to state that as a general rule, because I might say here that in six cases a study of the metabolism of normal pregnancy required two years' work by one man who did nothing else, and all urine, lochia, and feces were carefully saved, and nitrogen determined for the total and for its individual parts; also the food or weight, and the patients were in charge of a trained nurse who was directed to catheterize rather than empty any of the urine voided. As far as we could be certain, from a limited number of cases, we can conclude that this ammonia is influenced by the presence of the child, and curious enough this is confirmed by the clinical findings. When the child dies in utero, as a rule, the prognosis is better.

I would like to call attention once more to the relation of the ammonia. It cannot be detected by the Doremus method, because the hydrobromate method takes not only urea nitrogen, but that of ammonia. There are many methods described in von Jaksch that can be used at the bedside, such as the sulphuric acid method, and making a reading in a couple of days. The presence of this curve must be regarded at the present time as very suggestive.

**Dr. Bacon (closing the discussion).**—I would like to reply first to the remarks of Dr. Maley and to those who have preceded him, because they are the most important. Dr. Maley asked if the thing to do is not to empty the uterus as soon as posible with what facilities we have. That is an important point, and I should say, decidedly, no. I think a great many women would lose their lives if such a practice was put into affect. I know many cases of that kind in which that treatment has been carried out. If the uterus is not dilated, and the cervix is not effaced, not at all open, it is a serious matter to open the uterus and extract a child. It means death of the child and generally a severe laceration; it is liable to infect the mother and frequently cause her death. This is so well established by the results that I think it ought to be forcibly stated. I have not a particle of doubt that it is a great deal safer in cases of that kind to deliver a woman by classical Cesarean or vaginal Cesarean section. I am rather inclined to believe, from the progress we have made with vaginal Cesarean section, that it is the more important operation, and for that reason I would not hesitate to resort to it, leaving for all cases the other operation in which vaginal Cesarean section is not indicated.

The immediate opening of the uterus, where there are no reasonable facilities, is much safer than accouchment force, described by Dr. Maley. We have considered obstetrics in an entirely different way from what we consider ordinary surgical methods. Surgery has its definite rules, which obstetrics cannot have, because we have to take into account the facilities, and if we have not the facilities we must do the next best thing. The next best hing is so-called conservative treatment, that is, eliminating thoroughly and controlling the symptoms, and watching the patient with the utmost care. If this is done, I am positive that our results will be better than to resort to forcible emptying of the uterus when we have not the facilities to do so.

With regard to one or two interesting points made by Dr. De Lee, I will say that his experience in regard to post-partum convulsions agrees with mine. From my own experience, I should say that post-partum convulsions are very serious, and my views are quite in opposition to the usual statements made on this subject. It seems to me, the accumulation of poison which will lead to convulsions after delivery is so severe, and probably the myocardium is so injured, that the outcome is more doubtful.

With regard to the prognosis of the different symptoms, a point brought out by Dr. DeLee and Dr. Lobdell, that I will not go into except to say that the prognostic value of these symptoms is quite different from their diagnostic value. A probable continuation of the increase in albumin and edema, under proper treatment, is of serious prognostic significance.

The point made by some in regard to the fetal indication was not quite logical. The point I made was this: There may be a fetal indication; we may interfere before the convulsions occur, in order to save the child. This may influence our decision. If, in spite of treatment, the symptoms continue, we may infer that the child is exposed to considerable danger. That point is not answered by saying that children are alive at the end of term, but the simple fact was in the case mentioned the

poison was later in developing. If the poison develops early, there is certainly more risk to the life of the child.

With regard to the remarks made by Dr. Leidell (I regret she has left the room), I should not consider it conservative treatment to do a vaginal Cesarean section for the purpose of removing a dead child. It seems to me rather singular that a vaginal Cesarean section was done in this case when the child was already dead. Personally, I do not see any indication for vaginal Cesarean section in such a case. If there was infection, there might be an indication for removing it. If there was no infection, labor would recur spontaneously.

With regard to the remarks made by Dr. Lewis, as to the use of ether, of course it opens up the whole discussion of ether and chloroform, but the more recent investigations, such as those collected and reported by Dr. Mellish, in a paper read before the American Medical Association last year, in New Orleans, show that the danger to the kidneys from the use of ether has certainly been exaggerated. It has not been proven that ether is more dangerous than chloroform, and the statement of Dr. Lewis that chloroform is almost the universal anesthetic in obstretrics is rather misleading. Of course, it may be in certain parts of the country but such a statement is not generally true, and I believe that we shall see in the near future a considerable increase in the number of practitioners who use ether, which is certainly the safer anesthetic.

## APPENDICITIS WITH PERIAPPENDICULAR ABSCESS AND INFECTION OF A LONG-STANDING OMENTAL HERNIA IN THE RIGHT INGUINAL REGION.

BY BAYARD HOLMES, M. D.

Professor of Surgery in the College of Physicians and Surgeons, Medical Department of the University of Illinois, etc.

On Sunday, September 4th, 1904, I operated on a patient for Dr. E. E. Perisho, of Streator, Illinois, and found a condition of great pathologic and clinical interest.

The patient was a well-proportioned woman of 40, weighing 150 pounds, the mother of several children, and had suffered for two or three years with an irreducible hernia in the right inguinal ring. This hernia was about the size of a walnut. It gave rise to only trifling pain and discomfort. It had been repeatedly seen and diagnosed by Dr. Perisho. Thursday night, September 1st, after a long wagon ride, she felt some distress in the hernia and in the lower part of the abdomen. She waked up several times in the night with the pain. On Friday she had several attacks of abdominal pain, and visited Dr. Perisho at his office Friday afternoon. Dr. Perisho made a relative diagnosis of appendicitis, but considered the presence of the omental hernia as a factor which would complicate the diagnosis and possibly make the treatment difficult. He prescribed rest in bed, the total abstinence from food, and a vigorous use of enemas. Friday night and Saturday she had severe pain, and on one occasion vomited. She sent for Dr. Perisho in the afternoon, and he found increasing symptoms of peritonitis about an inflamed appendix or a volvulus behind an omental constriction. Shortly after his visit she had a pronounced chill, and her temperature went up to 104°, her pulse to 130. On Sunday morning he recommended operation, and I operated for him at eleven o'clock Sunday night at the home of the patient.

At this time the patient's temperature was 103°, her pulse 116—it had been as high as 140 during the early part of the day. The hernia was plainly palpable and very tender to pressure. The region of the appendix was excessively tender and the right rectus muscle very tense. The palpating finger could discover nothing pathologic in the tubes or uterine region through the rectum or vagina, and the region of the spleen, liver and kidneys appeared perfectly normal. The attitude and expression of the patient indicated a considerable peritonitis. The abdomen was not greatly distended, and although she had vomited several times during the day, she had passed gas and fecal matter. The region of the hernia seemed to be in a mild inflammatory state. It was tender, tense and hot, and she declared that it was more swollen than it had been. The tenderness of the patient precluded any palpation of the appendix, and there was no dullness to indicate a distended strangulated gut, and no gas sounds on auscultation to indicate any violent peristalsis in the region of the hernia. I still thought that the condition was one of appendicitis, possibly strangulated in the hernial sac. I thought of a possible ovarian tumor, with twisted

pedicle, of a volvulus behind an omental band, but in any case I diagnosticated a diffuse peritonitis in the right iliac region.

After the preparation of the patient and an operating room, with chloroform anesthesia the abdomen was opened by an incision an inch and a half long over McBurney's point and on the outer border of the right rectus. As soon as the peritoneum was opened a thin creamy pus poured out. The left index finger sought the appendix by following the parietal peritoneum to the right of the incision and at once discovered a thick indurated mass, probably the appendix, surrounded with a considerable abscess of thin pus. With small sponges this was carefully mopped out by the side of the guarding finger, and a large laparatomy sponge was so placed as to hold the intestines back and give access to the ileocolic fossa, in which the indurated mass was found. Before these manipulations were completed a tense band, about the size of the index finger, was discovered stretching immediately across the iliac region and firmly fixed in the internal ring. By manipulation over the hernia and tension and torsion upon this band, a small omental hernia, the size of a walnut, was dislodged from the sac and brought into the wound. It was black, hard, and covered with fibrinous flakes and pus. The band itself, which was of attenuated and sclerotic omental tissue, was uninfected and apparently free from any inflammatory process. The band was ligated off from the general omentum, and the contents of the hernial sac cut away. The appendix was then brought into the wound, its mesentery ligated, and the stump of the appendix treated in the ordinary way. On account of the extensive peritonitis and the quantity of the effusion, three tampons were placed into the peritoneal cavity and three fossae adjoining the site of operation thoroughly drained. For this purpose one narrow, folded strip of iodoform gauze was used, draining the ileocecal fossa, and the pelvic fossa, into which the hernial sac opened. The ileocolic fossa was drained with a tampon of plain gauze, carefully covering the ileocecal juncture and filling the ileocecal space, in which a considerable quantity of pus had been found. The third tampon of plain gauze was in the retrocecal fossa, carefully laid between the outer, or lateral, wall of the colon and the right abdominal wall. This was done because the head of the colon and the right, lateral, wall of the colon was covered with fibrinous flakes and bathed in pus, and I feared extension in the direction of the liver and diaphragm. The ends of these strips hung out of the wound for five or six inches. The protecting sponge had been removed during the course of the tamponade, and when all was thoroughly fixed in place the protecting finger was last of all withdrawn. The ends of the tampon were so disposed as to hold the short abdominal wound open.

It was a question with me whether to open the hernial sac by a second incision and drain it from above, or leave it to be drained by the pelvic tampon which covered its peritoneal opening. As subsequent events demonstrated I erred by letting it alone.

This operation required fifty minutes from the beginning of the anesthesia to the end of the dressing and the placing of the patient in bed. It required twenty minutes from the beginning of the incision to the application of the dressing. At the end of the operation the patient's temperature was 101° and her pulse 104. There was a rapid decline of temperature and pulse during the next few hours, and the temperature never rose again above 99°, though the pulse showed considerable fluctuation. Four days after the operation the evidence of infection in the hernial sac increased, and it was opened by Dr. Perish and drained with a small iodoform gauze tampon. At the end of ten days all the tamponade had been removed, and at the end of two weeks there was a slight hemorrhage in the course of the dressing, probably due to the injury of some omental blood vessel by the removal and insertion of the tampon.

The interesting point in this case is the infection of the omental and partially strangulated hernia from a rather distant appendicitis and periappendicular peritonitis without evidence of infection of the proximal portion of the omentum. This infection must have crept down on the omental peritoneum into the hernial sac, where it found a tissue of

diminished vital resistance, or it must have been carried into the sac through the parietal or through the omental lymphatics. In any case it is very suggestive of the danger which lurks in the cyanotic tissues of a hernia, a volvulus, an ovarian tumor, or other isolated tissue. It further calls attention to one of the almost innumerable sources of error in diagnosis of disease in this region.

## HOME SANATORIA

BY ETHAN A. GRAY, M. D., CHICAGO.

In order to emphasize the simplicity and feasibility of applying the fresh air idea in the treatment of pulmonary tuberculosis these notes and photographs are presented.

Although the profession has accepted the correctness of the open air theory, many individual members hesitate to recommend the patient to "camp out." Much of the feeling of difficulty regarding the applicability of the home treatment of these cases can be removed when the physician learns how easy it is to avail himself of the resources at hand.

These photographs will show in use the back porch of the ordinary flat building, the front three foot porch opened upon by windows of a second or third flat (no stairs), the roof of a large veranda and the barren back yard, furnished with a 6x6 floored tent.

Taking the first (Fig. 1): This shows in use the veranda roof above mentioned. The only covering or protection to this porch as far as the patient is concerned, is the tarpaulin hood, rough and home made, attached to the head of the cot. The cot itself is protected only by the rubber sheet which covers it. This is the outdoor home of a lady whose lung is apparently well and whose cough has disappeared entirely. A small cavity in the apex is demonstrable—dry and seemingly smaller than it was three years ago. She has slept out of doors constantly for two years, save when the cold or winter drove her indoors. At such seasons she betook herself to the Oji Valley of California, there continuing her open air mode of life until she could return East. Her case shows what can be accomplished.

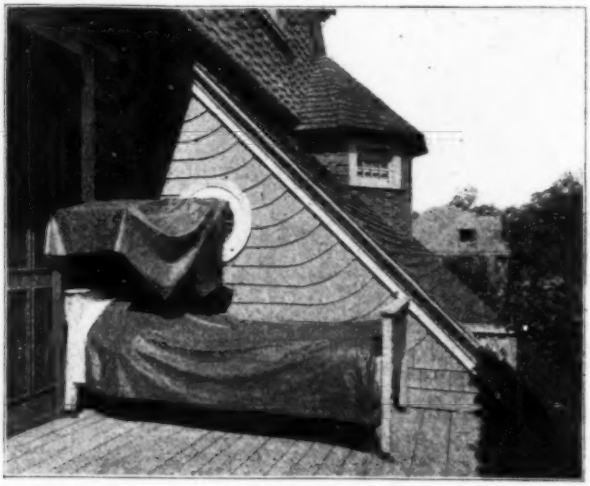

FIGURE 1.

In Fig. 2 we pass to different surroundings. The tent in a bare back yard speaks of but little comfort and of no luxury. Nevertheless, in this 6x6 tent, with a rough board floor, one of my patients has made his fight

FIGURE 2.

FIGURE 3.

against the progress of pulmonary tuberculosis. Such an arrangement is easy of accomplishment. The cost of the tent, cot and floor can come under ten dollars. An electric push button pinned to the side of the tent places the patient in touch with his family at all times. A bit of mosquito netting will be of value. When there is no shade to be had, a fly of black cambric or some such stuff will intercept the sun's rays in a great measure.

erected to protect against intrusion from the stairs. The canvas insures sufficient privacy.

The flat roof may be used as a home sanatorium—the conservatory of the better class houses is of great utility, the glass work affording almost a maximum of light and air.

Not only for the sake of ultimate results, but for symptomatic conditions, is this treatment of value. Cough has been allayed in a

FIGURE 4.

Fig. 3 shows a front porch in the third story of a frame house. It is three feet wide and eight feet long, having a three foot balustrade. This porch is capacious enough to accommodate a cot, or at least a good mattress. Canvas, nailed along the railing, affords privacy, or, better than that, wire screen, painted white, will answer the same purpose and admit much more air. It is an easy matter to rig a tarpaulin or rubber sheet for protection against rain and sun.

Fig. 4 depicts the back porch, third floor, of an ordinary flat building. The furnishing consists of a cot, a simple framework to carry the mosquito netting and canvas sheeting running on wires to act as wind breaks and sun shades. In the case of timid patients, a low (6 ft.) board partition with door may be

marked degree by the prolonged exposure to the effects of the open air. Fever, combined with anorexia, is often favorably influenced while the enlarging effect on the mental condition is certainly more favorable than the cautious tone of the closed room.

It is not necessary to urge the undeniable advantages of fresh air—these lines are merely intended to show what use can be made of the resources at hand.

11 Evanston avenue.

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**Dr. E. A. Morgan,** for many years a prominent physician at Maroa and in more recent years a practitioner in Decatur, has announced that he will retire from practice because of his failing health.

**Dr. Julia Clark Strawn,** 4400 Ellis ave., has sailed for a trip through Ireland, Scotland, Germany, Austria, Italy, Turkey and Egypt, to be absent for four months.

# The Illinois Medical Journal.

The Official Organ of the State Medical Society.

OCTOBER, 1904.


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## DR. KOENIG RETIRES.

Dr. Adolph Koenig, founder of the Pennsylvania Medical Journal and for seven years its editor, owner and publisher, announces his retirement in the September issue of that Journal. In June, 1897, Dr. Koenig assumed the responsibility of publishing the transactions of the Medical Society of the State of Pennsylvania in Journal form and thereby became the pioneer in this field which has been followed, as our readers know, by a number of the larger state societies of the Union. Dr. Koenig's ability, unselfishness and modesty have been conspicuously shown in the columns of the Pennsylvania Medical Journal. Part of his remuneration for the publication of the Journal was to be received from the advertising pages of the publication. Instead of using the columns for his own personal gain, Dr. Koenig has been unusually critical of the advertisements printed. He has been so straight that he has almost bent backward in his uprightness and he can well say that his Medical Journal representing the transactions of a great medical society has been as free from commercialism as the daily life of a physician actuated by the highest motives of humanity and no one can say that he encouraged the use of unethical remedies which tend to injure the sick and afflicted rather than benefit them. In bidding farewell to Dr. Koenig we believe we echo the sentiments of the best medical men of his and every other state in saying

that he will leave a shining example as editor which we hope will ever be maintained by his successors in the editorial chair.

## IOWA PLAN OF MANAGING STATE INSTITUTIONS.

At our request Mr. L. G. Kinne, of the Iowa Board of Control has sent a report regarding the success of his Board in managing the public charities of that state. We commend its perusal to all our readers. The time has certainly come for some sort of a change in the management of the Illinois Institutions; just how this change shall be brought about we do not pretend to say but when this matter is taken up the Iowa plan should be thoroughly considered and if the results are at all equal to what is claimed for them by the members of that Board we should recommend a similar provision for the State of Illinois.

While on the subject of State Institutions it might be well to consider the necessity for another insane hospital. There are probably five thousand insane confined in county poor houses where the character of the attention at the best is much inferior to that provided in the State Institutions. In the county as an ordinary rule politics control the appointment of superintendent and attending physician to an even greater degree than in the State. Of course an exception must be made to this rule as regards Cook county where the strong agitation on the part of the Chicago Medical Society brought about a radical change at the time when matters had become about as bad as could be conceived. Unfortunately none of the other counties in the State has a population sufficiently large enough to warrant the construction of a special asylum for its insane inhabitants and it is in these counties that the greatest abuses now exist.

## CLEAN MILK.

The State University of Illinois through the chief in Dairy Husbandry, Wilbur J. Fraser is doing a great work in agitating the subject of clean milk at the agricultural experiment station at Champaign.

Few cities in the State outside of Chicago are now supplied with milk of even decent character and the necessity for work of this sort is very apparent to every medical man in the State. Even in Chicago the percentage of absolutely pure milk as supplied to the inhabitants is very small. The circulars No. 73 and No. 78 issued by the University and profusely illustrated should result in a very short time in bringing about a radical change in the present conditions.

We would advise all our readers to send for these circulars and distribute them among their patrons and the dairymen in order that they may be no longer in ignorance of what is absolutely necessary for the production of a perfect dairy product.

## THE SPECIAL TUBERCULOSIS EDITION.

As had been anticipated the Special Tuberculosis issue of the Illinois Medical Journal attracted wide-spread attention. Many of our readers have written us that this one issue was worth the price of the Journal for the entire year. Several features which we had anticipated putting in the September issue were not received in time and are issued with this number of the Journal. These are an article on the Out-door treatment of Consumption with cuts illustrating the methods of utilizing city yards and porches by Dr. E. A. Gray. We are indebted to the Chicago Medical Recorder for the use of the cuts illustrating this article. We also send out with this number a half tone portrait of Professor Robert Koch, the discoverer of the Tubercle bacillus and founder of the Science of Bac-

teriology; we are indebted for the use of this cut to Mr. George Thieme, publisher of the *Deutsche Medicinische Wochenschrift* of Leipzig, in which Journal the illustration was used recently on the occasion of Professor Koch's 60th birthday. We also publish a circular letter originating with Chairman Pettit of the Special Committee of our Society, purporting to come from the three large state medical societies of Illinois, announcing the appointment of 70 representative medical men of the three leading medical sects and of all parts of the State. All these parties have agreed to assist in the active work of the campaign against Tuberculosis. Chairman Pettit also reports that the tent colony is progressing satisfactorily. Thus far the results have been like those obtained in such institutions elsewhere. He is just completing arrangements for the housing of such patients as may not be able to live in tents during the winter. The accommodations will necessarily be limited to about 30 patients. The treatment will be continued through the Winter and every provision has been made for making patients perfectly comfortable.

The State Board of Health has issued a third revised edition of its circular entitled the Cause and Prevention of Consumption. This circular embraces 24 pages and cover, has five illustrations and discusses the subject under the different headings; Deaths from Consumption in Illinois, 1903 by ages; How the Sputum may be destroyed; How to avoid consumption; Symptoms of Consumption; If you have consumption; The hygiene of the sick room; Consumption in schools; A State Hospital for Consumption; Comparison of the climatic conditions and elevation of a town in Northern Illinois with those of Rutland, Mass., Saranac Lake, New York and Chestnut Hill, Philadelphia. This latter going to show that the conditions in Illinois as regards minimum, maximum and average temperature, barometric pressure, per cent of sunshine, normal precipitation, altitude and character of soil is equal if not superior in this State to that prevailing in the East where institutions are maintained. The State Board of Health reports that there is unusual interest in the subject of Tuberculosis as shown by the rapid exhaustion of the circulars already issued by the Board, a great part of it due to the wide-spread agitation commenced at the annual meeting of the State Society and carried on since by the active Chairman of the Special Committee, Dr. J. W. Pettit, of Ottawa.

## Correspondence.

A MATTER FOR CONSIDERATION.

September 2, 1904.

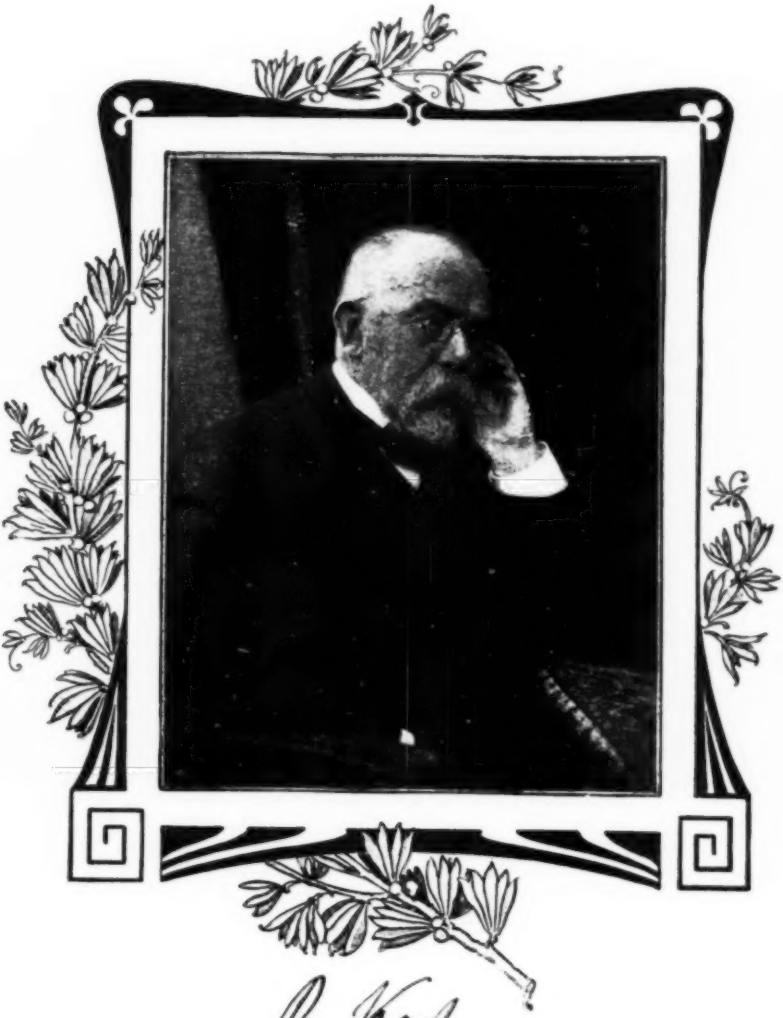
Dr. Geo. N. Kreider, Editor,
Springfield, Ill.

Dear sir. There is a little matter I think worthy of consideration at the hands of the various medical societies of the state, therefore I would be pleased to bring it to your attention, and through the Illinois Medical Journal to that of the hundreds of society members over the state.

It should, I think be seriously considered by the County Societies, particularly, as here is where the matter would naturally have to be taken up in detail.

I refer to the question: WHETHER OR NOT DOCTORS WHO ARE ELIGIBLE, BUT ARE NOT, AND WILL NOT BECOME MEMBERS OF THEIR RESPECTIVE COUNTY SOCIETIES, SHOULD BE ALLOWED TO HOLD POSITIONS OF TRUST AND HONOR BY APPOINTMENT, ETC., AS LOCAL EXAMINERS OF INSURANCE COMPANIES, LOCAL RAILROAD SURGEONS AND OTHER APPOINTMENTS OF SIMILAR CHARACTER.

If I may be allowed to do so I will quote my views on this subject as expressed in an article "The Benefits to be Derived from Organization and How to Derive Them," read



R. Koch.

fore the Effingham County Medical Society, at its January meeting this year.

Referring to doctors who will not identify themselves with medical organizations, I at that time read in part as follows:

"It is almost unnecessary to say that such acts are done to attract the attention of the public to them, and they will try to make trading stock of it.

I desire to go on record here and at this time, as saying that no one in the county will work harder to have our society include and benefit every eligible doctor in this county than I, yet if any there be who stays out persistently for the reason above mentioned, or for other unethical or discourteous purposes, no one favors 'sitting down' on him more than do I. You may feel assured that if one of 'my families' or patrons move into your territory they will go there instructed to call on Dr. A, Dr. B (who are ethical society members), if they be desirable as patrons; and if you hear of my calling a consultant, if I have any governing voice in it, and I usually have, he will be a member of this or some other medical society. A doctor who is either too nice or too mean to associate with me in medical societies, is likewise too nice or too mean for me to associate myself with in my professional duties.

Another thing I want to advise for your consideration: Many doctors over the county are local examiners for insurance companies and fraternal insurance organizations, local railway surgeons, etc., all of which positions command some financial remuneration and respect, and carry with them some prestige. As long as these positions are in the hands of worthy men, I say amen to it, but if any of these favors have been bestowed upon unworthy men—upon those unethical, discourteous, wee bits of narrow fellows, who recognize no code of ethics, and who are avowed enemies to this, and through it, to other societies, and who oppose professional progressiveness and merit in men, then doctors I maintain that we should take steps to have them ousted. Let worthy men have these favors. Let us petition the proper medical directors of insurance companies and fraternal beneficiary organizations and the head surgeons of the railroads requiring our attention, in the name and under the seal of our County Society, stating the facts and principles involved and demand recognition at their hands. Surely they will not knowingly identify themselves and their positions of trust and honor, with the class of men above referred to! This question seems to me to be a very timely and legitimate one for consideration all over the state. But a few months ago did I see the president of a county society and by far the best physician of several in his town, and a very liberal and ethical man turned down by an insurance company and an inferior in all respects, appointed in his stead. The appointee is a member of no society, a fighting enemy of all and has gained an unenviable reputation as regards ethics. So it is in perhaps hundreds of instances. I know of several men who are enemies to societies and professional progressiveness, who are local examiners for insurance companies or for beneficiary orders.

Now doctor in an appeal to you and to the profession of our state: Shall we stand for this? Shall we do nothing to right this insult to worthy men? After using all reasonable means to induce such men to be professional and to become members of their respective county societies, and through it, to those above it, and still they pull back, then shall we not rightly cut short their prestige, by relieving them of their appointive positions of trust and honor?

If so, shall the County Society take the question up first, aided by the influence of the State Society, if need be, or shall the State Society first take the matter up, upon the advice and consent of the respective County Societies? The public should be taught that medical organization is not a trust where we meet to agree on fees but that it is a scientific and social organization including the unselfish liberal progressive doctors of the county. A place where we meet with the needs of the sick foremost in our minds. Its members should be looked upon as the advanced element of the profession today, not only by the public but by some of the profession as well, and respected as such.

Let us in this way, put a premium upon

a membership in our affiliated societies. Many physicians do not see enough in a membership certificate to induce them to join. The questions of progressiveness and sociability perhaps do not appeal strongly enough to them. Many of these men are good men in their place, but they are in the wrong place. Then why not dilate upon the benefits to be derived by being a member of our County Society? Why not make State Reciprocity dependent upon a tried and true membership in the County, State and American Medical Associations. Surely if a doctor is competent to practice in Illinois he is in Indiana and if he is a tried and true society member here, worthy and progressive then let him cross the 'line,' so may we expect him to be there. But if he was an enemy to societies here, a pull back and a disgrace to the profession then do not let him disgrace two states, at least through the favors of state reciprocity.

Medical organization is right. It is an aid to the physician and likewise to his patients. We should have more members and more recognized rights and privileges for tried and true members.

I would be glad to have you bring this before the profession of the State through our State Journal; then that it will bring forth a free discussion on these subjects is my earnest desire.

Thanking you for your past favors I a m,

Yours fraternally,

Dr. F. Buckmaster.

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DANGER FROM HANDLING COINS.

New Brownfield, Ill., Sept. 4, 1904.

Editor Illinois State Medical Journal,
Springfield, Ill.

Dear sir. I am much pleased with the article on Tuberculosis by Dr. Mix and especially your editorial on "Public Teachers and Tuberculosis." I hope you will not consider me presumptious in suggesting another item. That of persons, especially children, putting small coins in their mouths, no matter how many filthy (germ laden) pockets and hands the coin passes through before papa or mama gives it to the ordinary taught child it "pokes" it into its mouth more often than not.

I saw an "intelligent clean" man place a 50 cent silver piece into his mouth recently while he went down into his pockets for correct change.

I will not consume your time, simply make the suggestion.

Respectfully,

E. Peters.

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UNCINARIASIS IN THE HOG? WHO CAN TELL?

Pana, Ill., Aug. 1, 1904.

Dear Doctor:

I wish to inquire whether or not the hog is infested with the parasite uncinaria duodenalis? I will be very much obliged to you if you will give me any information bearing on the subject, either of a personal character or in pointing out to me where I may find any literature pertaining to the subject.

In Vol. 2, Series XIV, 1904, of the International Clinics, Professor Allen J. Smith, of Philadelphia, has an interesting article on "Uncinariasis" in which he says: "In addition to the two hook worms of man, a number of species infecting the lower animals, as Uncinaria cania of dogs, Uncinaria stenocephala of dogs, Uncinaria trigonocephala of sheep, Uncinaria radiata of cattle, Uncinaria lucasi of seals. All are parasites of importance in that they attach themselves to the intestinal mucus membrane, suck blood from the tissues of the host, and give rise to more or less severe anemia of the type of progressive pernicious anemia when fully developed?"

In reading this I was reminded of a circumstance which happened in my practice in 1875. I bought, Nov. 10th of that year, a bunch of young hogs (shoats) of a patron and the most of them turned up and died with the so-called, at that time, "hog-cholera." I held an autopsy on the carcasses of two of them and found the following conditions which greatly interested me at the time, viz., the pigs were greatly emaciated, tottered as they walked with head down and ears drooping, grunted with evident pain, refused food and drink, mucus membrane pale and anaemic. In opening the body I found in the small intestines a worm about as long and as large as the common intestinal worm

of children, firmly attached to the gut by their heads which were entirely buried in the mucous membrane. In catching hold of the worms attached to the gut I could lift a double loop of the intestines two or three yards long before the worm would become unattached from the bowel, and when it did let loose or when forcibly torn from the gut a hole was left in the bowel about ⅛ of an inch across. No blood, however, escaped from the hole thus made.

The specimen was shown to the Secretary of the Illinois State Board of Agriculture but he was unable to give me any information regarding the matter but requested me to write a description of what I had found for the Reports which the Board was preparing at the time, but I did not do it. I did, however, take the specimen back to Ann Arbor with me and placed the same in the hands of Prof. E. S. Dunster who presented them to the class and based a few remarks on "worms" in general as they are found in the human, and especially in children. He placed the specimen in the University Museum where I suppose it remains now.

I will be very grateful to you if you will cite me to any information on the subject, my interest being awakened by the above mentioned article of Prof. Smith. Thanking you in advance, I remain

Yours truly,

J. J. Conner, M. D.

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A DISPENSER OF READYMADE PILLS AND TABLETS, OR A PHYSICIAN; WHICH?

"Good morning doctor, do you supply your own medicine? No? Well, we can put you in a position to increase your income with just a little outlay. When the patient wants more medicine, he has to come to you, instead of the drug store and *you* get the benefit instead of the druggist.

We are putting our goods in all over; all the best doctors have them: so if they do it behooves you to fall in with the procession." A conversation like the above often comes to the physician today. While an intimation that you "don't care to consider the proposition" only brings an insult from the glib tongued "traveling man" who represents some *"Pharmacal"* house; and it is only by telling him in plain language that you are quite conversant with your own business and needs, that he condescends from advisor and instructor to petty salesman of a lot of "non secret" ready made, ready to be taken drugs for a *ready* diagnosis and in contradistinction to the so called secret drugs or preparations which are first advertised to the medical profession as purely ethical, until the gullible in our ranks create a demand for it, that is gladly filled by the humanitarian, who manufactures the nostrum.

A physician informed me recently that he "purchased fifty to sixty dollars worth of drugs (readymade) every two months from one "Pharmacal House." "Counter prescribing" is the hue and cry raised by the agent also the doctor who thinks he is not getting his quota of the five hundred people to attend professionally, when the division of the population of the state is apportioned pro-rata.

There are several reasons why doctors furnish their own drugs; we will not attempt to cover the whole subject in this short paper.

A. Can the prescriber furnish the patient just what he wishes to give in tablet, pill or readymade liquid form?

B. What effect does the slovenly cheap box or label on a bottle, with a *cheap* wormy short cork, have on the refined sensibility of the patient? (If there is one thing more than another that makes the writer feel sick in the region of the solar plexus, it is to have a patient produce a soiled cheap box partially filled with hard undissolvable tablets or bunch of sugar coated pills, stuck together like Ant eggs.) The effect on the patient if he has any sensibility must surely be nauseating.

C. What effect does this becoming a dealer of pills and too often proprietary nostrums, have on the dignity and professional pride of the physician himself?

D. Does it broaden his horizon as regards useful drugs recommended in articles he may read in books and journals, or does each patient get the same remedy in the same doses —A Cure All.

Go through the list of proprietary medi-

cines in the shops, a look at the old and even the newer prescription files would find that the *doctors themselves* were responsible for the knowledge percolated through the laity concerning the infallible cure alls. Every sample proprietary has a distinctive mark so that the patient can go to the drug store for the original bottle when the good natured doctor has given the sample to a patient, to do them a favor or to get out of writing a prescription.

There are many phases of this great burning subject and it should be discussed and cussed.

Almarin W. Baer, Ph. G., M. D.
Chicago, Ill.

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THE UNFAIR APOTHECARY.

"It is derogatory to professional character for a physician to prescribe or dispense a *secret nostrum*, whether it be the composition or exclusive property of himself or others. For if such a nostrum be of real efficacy, any concealment regarding it is inconsistent with beneficence and professional liberality and if mystery alone gives it value and importance, such craft implies either disgraceful ignorance or fraudulent avarice." Code of Ethics.

There is nothing equivocal about the foregoing paragraph and it is because they lived up to its spirit of *non sibi, sed omnibus* that the world today honors the memory of such men as Jenner, Sydenham, Beaumont, Lister, Lawson Tait, Pasteur, Virchow, Marion Sims, Koch, Behring, O'Dwyer and many other heroes of Medicine and Surgery, while recalcitrants like the Chamberlens whose obstetrical forceps was used for several generations as a private emolument are justly forgotten by the world at large.

This being said "'tis a poor rule that doesn't work both ways," and if the reputable physicians of our country indorse this rule, why should not the pharmacist (our chiefest competitor) be made to subscribe to it also?

Let any physician spend a few minutes during the busy evening hours at his local apothecaries' and he will find a state of things that will prove a revelation to him.

He shall observe the liberal sale on demand of abortifacients, "rubber goods" and phallorrhagics, he shall see counter prescribing, prescriptions refilled on verbal request. Sales of hypnotics, intoxicants, narcotics and lethal drugs, not to mention that of a myriad of nostrums, many of which work incalculable mischief upon the credulous community, which because Gen. Brown, Gov. Jones or Senator Robinson consented (for a consideration) to endorse the merits of Smith's Malt Booze or Wilson's Salary Compound or "Beeruna" the great cure for whatever ails you—Gladly guzzles the stuff in enormous quantities and what is worse pours it into its unprotected young, instilling a taste that only too often leads to intemperance with all its attendant evils.

A glance at the average apothecary shop of today shows a vast change from that of 30 or 40 years ago.

Then there were comparatively few nostrums or patent medicines on sale. "Stomach Bitters" led the van, made up like their modern congeners, of a quantity of vile whisky, an aromatic, a carminative and a flavoring agent, bottled and covered with a flashy label. Next came a variety of liver pills, a few vegetable cathartics and cures for rheumatism and finally the usual supply of crude drugs, toilet soaps, perfumes, sponges, etc., etc. This constituted the stock with which the apothecary of *ante-bellum* days did business. In other words he confined himself very nearly to the legitimate field of the pharmacist and did not have the presumption to invade the field of his best patron—the regular medical doctor.

Year by year however his armamentarium of nostrums kept growing, the exploiters of which through the lavish expenditure of money had succeeded in debauching the consciences of newspaper and periodical publishers, until the gullible public reading again and again the stories of marvellous cures and the open attacks on the incompetent medical profession gradually arrived at a belief in the specious lying of the advertisements. The apothecary finding it easier and more profitable to take sides with the

nostrum vendor, threw his considerable weight on that side of the scales with the result that the sleepy though conscientious, hard-working physician was sent sky-high to kick the beam or at best to eke out a hand-to-mouth existence while wondering at his crass stupidity in continuing to feed with prescriptions his chief competitor, that medical cormorant, the modern apothecary.

Now as a prophylactic and alterative for this intolerable state of things, I would suggest that the American Medical Association through its County Branches, take up this work of reform by appointing committees to confer with certain reputable apothecaries who will agree in consideration of receiving the patronage of the members of the Society, to discontinue counter prescribing, repeating prescriptions without authority, the sale of narcotics, hypnotics and lethal drugs on verbal order, who shall carry in stock a high grade quality of drugs and chemicals, who shall not substitute and who shall in fact conduct the business of an apothecary shop and not that of a general store or bazaar and above all not that of a physician *de facto*.

The Canadian Medical Association has taken up the crusade against the patent medicine whisky sellers by introducing a bill at Otttawa compelling vendors to publish the formula of each proprietary remedy offered for sale in that country.

In conclusion, I believe that members of the local societies together with other reputable if sectarian physicians, who write prescriptions, use surgical dressings and appliances germane to professional work have the cure of these growing evils in their own hands and that right *here and now* is the time to apply it. Otherwise if we do not act soon, it is only a question of a short time when we shall be forced to add an apothecaries stock to our office equipments, as they do in Great Britain or accept the alternative and retire from what is left of a dwindling practice. I for one am willing to give of my time and substance and to use what small influence I possess towards helping establish a group of apothecaries who will "tote fair" with their chiefest patrons —the ethical doctors of medicine.

William D. Byrne, M. D., Chicago.

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## THE BOARD OF CONTROL OF IOWA.

DES MOINES, September 1, 1904.

Geo. N. Kreider,
522 Capitol ave.,
Springfield, Illinois.

My dear sir:

Your favor received and I note what you say about sending a copy of the journal containing information we desire. This will be greatly appreciated. I enclose you herewith a detailed statement of the origin with reference to the law and the work of this Board which was prepared some years ago for a committee appointed by the governor of Minnesota prior to the enactment of their law there. It is as appropriate today as then and as complete as it could be made now. Kindly read the same, copy it if you wish, and return to me at your early convenience.

The Board has been in existence since April, 1898, although it did not take charge of the institutions until July of that year. The results have been as indicated in the enclosed article. Politics has been absolutely eliminated from all the institutions, there is not a single political assessment permitted and none attempted anywhere, nobody is appointed or removed on account of politics, and every person is secure in his or her position regardless of politics or religion so long as he is competent and attends to his business. The system has given great satisfaction to the heads of the several institutions who find that they have far more power than they ever had under the old arrangement. The theory of the law is that this Board holds the chief executive officer accountable for the proper conduct of his institution in every respect. He is absolutely untrammelled in the selection of all his subordinates and in their removal when he deems such removal proper, and there is no appeal. The result is the personnel of the employes of every description is very greatly improved and the institutions are in that respect on about as high a plane as you could ever expect to get them. The

medical service is excellent, the care all that can be asked and the food, clothing, etc., better than it has ever been in the past.

Any other information you desire in addition to what is included in this article we shall be glad to give you.

Very truly yours,

BOARD OF CONTROL OF STATE INSTITUTIONS,
By L. G. Kinne.

Sir: In accordance with your request, I present some facts in relation to the organization, powers, and duties of this Board and the results attained in the practical operation of the law since this Board took charge of the institutions six years ago.

To fully understand what follows, I should state that prior to July 1, 1898, all of our State Institutions for the care of the dependent, defective, and delinquent classes were governed by boards of trustees, there being a separate board for each institution, except in case of the Industrial Schools where one board had charge of the school for boys and also that for girls. The penitentiaries were under the immediate supervision of the Governor of the state.

These boards of trustees were elected from time to time by the legislature, having been first selected by the caucus of the party in power. Usually a minority of the membership of these boards was made up from persons belonging to the party not in power. Generally one member of the board of trustees was selected from the town or city where the institution was located, the other members were selected from the state at large.

For many years various public men of the State had advocated a change in the system and the placing of all of the institutions under the control of one central board. The special session of the Twenty-Sixth General Assembly adopted the following resolution, providing for an investigation of State Institutions, viz.:

"First. Whether the persons holding positions or regents, trustees, or commissioners have faithfully accounted for all moneys of the state which have been drawn from the state treasurer, or have come into their hands otherwise, and whether the moneys drawn from the state treasury have been expended in accordance with law.

Second. Whether such persons have drawn money for service, per diem, mileage or expenses, or otherwise not authorized by law, or have authorized expenditures without authority of law.

Third. As to the manner in which all contracts, including those for the purchase of supplies, have been let, and to ascertain whether, or not the matters in charge of such officials are conducted in an economical and business-like manner.

Fourth. Whether the products of the institutions which are owned by the state are purchased, used, or consumed by the other state institutions and if not, the reason for such discrimination against such product.

Fifth. Whether the number of employees in the various state institutions is greater than is necessary for the proper conduct of its affairs, and whether the salary paid to such employes is greater or less than is paid for like services in private institutions of a similar character."

The period covered by the investigation extended from July 1, 1893, to January 1, 1897. The resolution directed the committee to report to the Twenty-Seventh General Assembly the result of such investigation with the testimony so taken, and to recommend if any change should be adopted in the government or management of such institutions.

A committee composed of two republicans and one democrat was appointed to make the investigation, which took several months to complete. Among other things it was found that no two institutions followed the same plan as to expenditures, or as to keeping their records. It was found that in many cases expenditures had been made which were not authorized by law; that in some cases bills for supplies were paid for without being audited by the board of trustees, or any of its members; that in some cases discrimination was made in favor of certain houses in the purchase of supplies; that supplies were often purchased without competition; that funds appropriated for a specific purpose had been used for other purposes; that at several institutions the system of bookkeeping was primitive and defective; that the trustees visited the institution only occasionally and gave little or no attention to the expenditure of funds; that superintendents of like institutions received different compensation for like service, and the same was true as to subordinate officials and employees. These and many other facts were elicited during the investigation.

The result was a recommendation for the establishment of a central board to control all of the institutions and this recommendation was given effect by the passage of what is commonly known as the Board of Control law.

It is my purpose in this paper to deal mainly with facts, leaving the reader to draw his own conclusions. A logical and natural arrangement of the subject suggests the following divisions:

First. The organization, powers, and duties of the Board.

Second. The system of financial accounting.

Third. The system of purchasing and disbursing supplies and of keeping account of the same.

Fourth. The gathering and preservation of statistical information.

Fifth. Other books required to be kept and reports which must be made.

Sixth. Other matters of interest.

### The Organization, Powers and Duties of the Board.

Chapter 118 of the Acts of the Twenty-Seventh General Assembly of Iowa provided for the appointment of a "Board of Control of State Institutions" to consist of three members, not more than two of whom should belong to the same political party, and no two of whom should, when appointed, reside in the same

congressional district. The term of appointment for the first Board was two, four and six years, and thereafter the term of office was to be six years. The Board is appointed by the Governor and must be confirmed by a two-thirds vote of the Senate. Each member is required to give a bond in the penalty of $25,000. The salary is $3,000 per annum and all necessary expenses incurred in the discharge of their duties. No member of this Board is eligible to any other executive office. The Board is at all times subject to investigation by the joint committee on "Retrenchment and Reform" of the legislature, also by experts appointed by the executive council. It is made a crime for any member of the Board, or any of its employees, and for any officer or employee of an institution to accept gifts from any one dealing with the institutions.

If any member of the Board, or any of its employees, or any officer or employee of an institution, exercises or attempts to exercise political influence on any officer or employee of the state, or if any such contribute money or any other thing of value for political purposes, they must be removed from their office or position. The law also makes the person who solicits a political contribution, guilty of a misdemeanor.

The Board appoints the chief executive officer of such institution and may remove him at its pleasure. The chief executive officer appoints all subordinate officers and employees and may remove them at his pleasure. It is made a crime for any member of the Board to suggest the appointment of any person under said executive officer.

We thus have in effect, civil service as to appointments to place in the institutions. The theory of the law is that the chief executive officer of the institution is responsible to the Board, and all of his subordinates are responsible to him. No influence, political or otherwise, can aid in securing the appointment or removal of an officer or employee of an institution. Capability and efficiency in service are the only tests and so long as the subordinate officer or employee of an institution can satisfy his chief in these respects, so long is he secure in his position. The effect of this system has been excellent. The efficiency of under officers and employees has improved in a marked degree and the baneful influence of politics has been entirely eliminated. In other words, business principles have been applied in all the departments of institution service.

### Powers.

The law clothes this Board with power to manage, control, and govern the following institutions:

The Hospitals for the Insane.
The Institution for Feeble Minded Children.
The College for the Blind.
The School for the Deaf.
The Industrial Schools for Boys and Girls.
The Soldiers' Home.
The Soldiers' Orphans' Home.
The Industrial Reformatory for Women.
The Penitentiaries.

In all fourteen institutions are thus placed under the full control of the Board.

The Board is also directed to investigate the reports and doings of the regents of the State University and the trustees of the State Normal School, and the State College of Agriculture and Mechanic Arts, and to ascertain and report to the legislature whether these bodies have properly accounted for all moneys of the state which have come into their hands, whether they have drawn appropriations in accordance with law and so expended; whether such persons have drawn money for services per diem, mileage, expenses or otherwise not authorized bylaws or have authorized expenditures without authority of law.

The Board is also charged with the duty of the supervision of all private and county institutions wherein insane persons are kept. It is required to make rules and regulations touching the keeping of such persons, to investigate all such institutions, and in case they fail to comply with the rules it may remove the patients to the State Hospitals or to other county or private institutions, complying with the rules.

As to the institutions which are fully under the control of the Board, it has power to investigate their management and financial condition; to investigate questions of insanity of patients in State Hospitals; to determine when insane persons shall be admitted to State Hospitals as state charges; to divide the state into hospital and penitentiary districts.

### Duties.

The Board was directed to prepare a statement showing the cost of operating the institutions for the preceding two years; to make biennial reports to the Governor and legislature; to visit all institutions once every six months, and hospitals by some of its members or its secretary once a month; to meet the superintendents quarterly in conference; to gather statistics; to publish a Bulletin; to compel the providing of fire protection and fire escapes; to require all employees handling the money or property of the state to give bond; to require certain officers to make an annual inventory of all the state's property at their institutions and to require a quarterly invoice of all stores and supplies; to annually fix the salaries of all officers and employees of the institutions except the chief executive officers. The legislature fixes the salary of the chief executive officer of each institution, and the Board annually fixes the salaries of all other officers or employees in them. To establish a uniform system of books and accounts and to require settlement with institution officers; to establish a dietary; to prepare biennial estimates of appropriations needed for the several institutions; to appoint a state architect who shall prepare all plans and estimates for new buildings and to make rules relating to the purchase of supplies.

### The System of Financial Accounting.

The law enjoined upon the Board the duty of prescribing the forms of records, blanks, and accounts, and contemplated, so far as practica-

ble, that such books should be uniform in the several institutions. Under the old system there were about as many different systems of bookkeeping—keeping financial account books as there were institutions. Now the financial accounts are kept in the same manner at all institutions and duplicate books are kept in the office of the Board. No individual accounts are kept. No day book proper is kept. The vouchers which are made in duplicate are kept, one copy at the institution and one copy in the office of the Board. These are bound and constitute the day book. We keep accounts with the State, with the Institutions, with all appropriations, general and special, and a separate account with each item of a special appropriation, and accounts under the classifications shown below, viz.:

1. Salaries and wages of officers and employees.
2. Provisions.
3. Household stores.
4. Clothing.
5. Fuel and light.
6. Hospital and medical supplies.
7. Shop, farm and garden supplies.
9. Library.
10. Water and ice.
11. Postage and stationery.
12. Transportation of Inmates.
13. Miscellaneous expenses.
14. Contingent (Support) fund.

As to special appropriations:

1. Deficiency.
2. Extraordinary repairs.
4. Land.
5. New buildings.
6. Transportation.
7. Miscellaneous.

The accounts in the Journal are made up as follows: The debit side is charged with all appropriations, general or special; also with the amount which may be remitted from the institution on account of sales of products of farm or shops. The credit side is made up from the pay roll and vouchers. The debit shows the date and amount in each case of the appropriation, and the product sold and its value. The credit side accounts are extended to the credit of the institution or under the several classifications above stated. Every voucher number appears, so that ready reference is had to the voucher itself.

A separate set of books is kept for each institution. Monthly trial balances are made in the Board's office and a copy transmitted to each institution bookkeeper so that mistakes are easily discovered. With this trial balance is also sent a classification sheet showing how the several vouchers have been classified in this office, and the institution bookkeeper corrects any error he may have made in the classification of expenditures.

This simple system of bookkeeping has given great satisfaction, and the result is that the Journal entries of the largest institution we have, containing about twelve hundred persons, cover only eighty pages and fully represent the business of the institution for two and a half years. The system is such that a mistake is well nigh impossible, and if made it is soon discovered and corrected.

### The System of Purchasing and Disbursing Supplies.

Anyone having had much to do with public institutions knows that one great point in their management is to stop leaks, thefts, and waste in supplies purchased. If supplies are purchased in the best and most economical way, and their disbursment is carefully looked after, much money will be saved to the tax payer, while at the same time the care afforded inmates is kept up to a high standard. This subject is very important and I shall consider it under the following sub-divisions:

1. Estimates;
2. Schedules for bids;
3. Schedules of bids;
4. Examination of schedules and samples by the chief executive officers;
5. Awards;
6. Receipt of goods at institution;
7. Pay rolls and vouchers;
8. Storekeeper and his duties.

### Estimates.

Everything purchased and paid for must be credited to the institution under some one of the classifications heretofore named. Nothing can be purchased for an institution unless it has been first estimated for and the estimate approved by this Board and the purchase ordered. The only exception to the above is that we keep in the hands of the head of each institution a fund not exceeding $250.00, which may be used by him in emergencies specified in the statute, and for which no estimate need be made, but a report of the expenditures out of such fund must be made every month with reasons for such expenditures.

These estimates are arranged in accordance with the classification list of accounts. They show an item number running consecutively through that particular classification of the estimate. Each item shows what is wanted, the amount, kind, value per yard, or pound, or as the case may be, and the aggregate amount. These items are arranged also under subdivisions of the classification. After the estimates are finished (they are made in duplicate), they are sent to this Board and may be approved, rejected, or modified, as the Board may deem proper. When they reach the office of the Board they are passed by its secretary to the estimate clerk, and she examines them carefully, notes whether the descriptions are correct and definite, corrects errors in the extensions, footings and classification, and attaches a memoranda slip with notes for the information of the Board. They are then examined by the secretary and passed to the Board where they are examined, modified, disallowed, or approved, as the case may be. A memorandum of its action is made on a sheet attached to the estimate, and it is returned to the secretary who puts the notes of the Board in formal shape and returns one copy to the institution, retaining one copy in our office.

Supplemental estimates are sent up when articles have been overlooked, or where the supply is insufficient. Re-estimates are required when the article estimated for costs more than the amount originally estimated.

Estimate blanks for purchases to be paid for from the general support fund are printed in black ink; those for special appropriations in red ink; and those for Contingent (support) fund on blue paper. These are thus printed to facilitate the work and prevent errors in bookkeeping.

The estimates are sent in as a rule quarterly, and about two months before the beginning of the quarter for which they apply.

### Schedules for Bids.

After the 10th day of November, February, May and August, respectively, when the estimates are all in, schedules are made up for each institution of all articles estimated for. These schedules embrace about one hundred different headings, and the articles are placed under the proper headings. The schedules are so arranged as to show the general item number, the estimate number, and the item number in the estimate, the article, quality, and measure. Places are left for the bidders to fill in the amount after each item. These schedules are footed for each institution. There is, for instance, one schedule for groceries, but all items of groceries for a single institution are under its heading. Bidders are thus enabled to bid on all articles in their line for one or more institutions as they see fit. Attached to these schedules are printed specifications, and dealers, wherever located, who have made known their desire to bid are furnished schedules.

### Schedules of Bids.

When these bids have been received at the Board's office, they are carefully gone over for the correction of errors or mistakes in extensions or footings, and if such errors are found the bidder is notified. Then the bids are put on a schedule, showing the name of all bidders on groceries, for instance, the name of the article, the amount bid on it and the aggregate amount of the bid on groceries for that institution. Samples are required of hats and caps, findings, dry goods, clothing, groceries, salt fish, smoked meats, and many other articles. These are all properly arranged in rooms for examination.

### Examination of Schedules and Samples by the Chief Executive Officers.

When the quarterly meeting with the superintendents is held and after it is over, the several superintendents take the schedules and examine the prices and the samples and make a memoranda of who in their judgment should be awarded the contract.

### Awards.

Some superintendent and one or more members of the Board then make the awards. The successful bidder is notified, and the chief executive officer of the institution is furnished a list of the goods and the price bid on each item. The Board fixes a maximum price on tea and coffee and awards on them are made after a test is made of the goods. The Board also fixes the character and quality of certain goods such as curled hair, rice, prunes, etc., for all institutions. No goods are shipped except on the order of the superintendent, and then direct to the institution.

### Receipt of Goods at Institution.

When the goods are received at the institution they are checked in by the steward and storekeeper and are entered on the storekeeper's record, and he is required at any time to produce the goods or requisitions showing that they have been properly disbursed. When the goods are thus checked in, the steward makes duplicate vouchers for the same which are furnished to the sellers to be verified.

### Pay Rolls and Vouchers.

An officer of the institution prepares a monthly statement or abstract of vouchers for the preceding month which are forwarded to the Board with the pay rolls of the institution. The pay roll is signed in advance by any person in the employ of the institution. The vouchers and pay rolls when received are passed to a clerk who examines them, sees that the extensions and computations are correct and all vouchers properly verified; he notes any irregularities for the consideration of the Board. They are then passed upon by the secretary and by him handed to the Board for approval. The Board if it finds errors or mistakes corrects them, and if any voucher be improperly verified it is returned for correction. Then the secretary prepares certificates in triplicate showing the name and postoffice address of each claimant, the amount due him, and the fund out of which it is payable. These are compared with the vouchers and institution certificate and are approved by the Board, and one copy is kept in this office, one copy is sent to the Auditor of State, and one to the Treasurer of State. The Auditor draws his warrant for the gross sum in favor of the Treasurer, and the latter issues his checks and mails same to the parties entitled thereto. The pay roll is paid in one check, made payable to the superintendent who pays the employees.

When the vouchers and pay rolls come before the Board the secretary attaches thereto a slip on which is shown in red ink the balances in the several funds out of which payments are to be made, to keep constantly before the Board the fact as to whether there is a sufficient balance in each fund to pay in full the pay roll and vouchers.

When a bidder has failed to furnish goods up to the standard required by the specifications, but they are healthful and needed for immediate use, the institution takes them, but makes a proper reduction in the amount of the voucher therefor from the contract price.

It will be observed that the Board of Control does not handle any money, and the several superintendents handle none except the $250.00 support contingent fund, the amount of the pay roll which they disburse, and money re-

ceived from the sale of products of the farm or shops which they are required to remit monthly to the Treasurer of State.

### Storekeeper and His Duties.

The storekeeper keeps a book on one side of which is entered all items received showing the invoice number, the date, the description of the item, amount, cost per yard, pound, etc., and the total cost. On the other side he shows all disbursements, also the number of the invoice, date, article, amount, cost per yard, pound, etc., and aggregate cost, and shows to what particular department the article went. Separate account is kept of all principal articles, and by footing the pages "received" and "disbursed" of any article, at any time he can tell just what he should have in stock. At the close of every quarter he must take an inventory of all stock on hand, and if the same does not agree with his books it is apparent there is an error which must be rectified. Twice a year an expert accountant is sent from the Board's office to check up all storekeepers. He invoices the stock, reports shortages or surpluses, if any. If there is a shortage, it must be satisfactorily accounted for to the Board, else the storekeeper must make it good. He lets nothing go without a requisition properly signed by the chief executive officer. These requisitions constitute his vouchers and entitle him to credit. One copy of every requisition is sent to the office of the Board where it is entered on the storekeeper's record for that institution in our office. It is to be remembered that all financial, storekeepers' and statistical books are kept in duplicate, one copy of each being in the Board's office. We get the items of debit for the storekeepers' records kept in our office from the vouchers, and the items of credit from the duplicate requisitions. We are thus enabled to keep constant tab on the storekeeper. He alone has the key to the storeroom and is responsible for any goods not properly accounted for.

### The Gathering and Preservation of Statistical Information.

At each institution is kept a statistical record which contains the name of every inmate, the date of their admission, their residence, and a multitude of facts relating to their history and that of their family. This book is so arranged as to show the subsequent history of the person while in the institution and his death, parole, release, discharge, as the case may be. Appropriate blanks corresponding to these books are furnished the institution and upon these all the information is conveyed to the Board when it is from time to time entered in a like record kept in the office of the Board. These statistical books and blanks are alike for the same kind of institutions. We thus have a reasonably full history in our office of every inmate in a state institution under the control of this Board.

### Other Books Required to be Kept and Reports Which Must be Made.

At each institution a book is required to be kept which is called a "Complaint Record." In it all complaints made by inmates, officers, or outsiders touching the management of the institution must be entered, with the action taken thereon by the chief executive officer. Monthly reports of these cases are made to this Board. At the hospitals for the insane and the penitentiaries there is required to be kept what is called a "Mechanical Restraint Record," wherein must be entered a memoranda of each case where restraint has been applied, the character of the restraint, the duration, cause thereof, and its effect.

At the Penitentiaries and Industrial Schools records are required to be kept of all cases of punishment by means of mechanical restraint or otherwise for infractions of the rules. In all the above cases monthly reports must be made to the Board upon blanks provided for that purpose. From time to time each institution must report its dietary in detail; showing number of persons fed, quantity of every article used, cost of same, and list per capita per meal, per day and per week. Every quarter each institution must report the condition of fire escapes and fire apparatus, showing the result of tests made by fire apparatus and wherein same is defective.

### Other Matters of Interest.

All books and blanks used at the various institutions in carrying out the system adopted are furnished through the Board and the cost apportioned to the several institutions; in this way only can uniformity be secured.

No new building or improvement can be erected or made which is to cost over $300.00, except on competitive bids.

The Board appoints an architect who receives a salary of $3,000.00 and railroad fare, and who is required to prepare plans and estimates for all new buildings and improvements and looks after the construction of the work. Plans are prepared by him for all proposed new buildings for which appropriations are to be asked from the legislature, also estimates for their cost. These are laid before the proper committees for consideration. Formerly the legislature was besieged by all the superintendents, and many of the trustees of the institutions who formed a formidable lobby for appropriations. Now the needs of the institution are presented by the Board and the superintendents devote their time to attending to their respective institution duties.

The chief executive officer of each institution, except the wardens of the penitentiaries and the commandant of the Soldiers' Home, draws food supplies for himself and all members of his family under twenty-one years of age from the institution stores, and he is not permitted to purchase with state funds any articles of food not bought for inmates.

In supplies we buy the best flour and meats obtainable. Fresh beef must be from native steers weighing when dressed from 600 to 800 pounds each. Great care is taken to have all goods of good quality, and the chief executive officer is made the sole judge as to whether articles furnished comply in all respects with the specifications.

Fire companies are organized and drilled at several of the institutions. All officers and employees having the custody of state property are required to give bond. All officers and employees except the chief executive and except those employed on the farms or in shops are required to be uniformed. This conduces greatly to discipline and indicates at once to the stranger those who are clothed with authority.

Semi-annual visits are made by the entire Board to all institutions, and some member of the Board visits the hospitals every month. Thus by visitation, by reports, by checks, by daily correspondence does the Board keep in touch with the affairs at the several institutions. It is the policy of the Board to promote capable and efficient officers to the positions of chief executive officers as vacancies may occur.

**Results.**

This system of control has now been in operation for more than two and a half years and has proven very satisfactory. It has resulted in paying women nurses and attendants the same wages as men receive for like service; in improving the character of the service; in bettering the condition of the institutions; in elevating the standard of care afforded to inmates. All this has been accomplished notwithstanding the fact that the legislature, just before we took up the work, reduced the per capita allowances for support of inmates in the aggregate sum of $100,000 per year, and the further fact that nearly all of the time since the law has been in operation the market price of many commodities has been steadily advancing. Over $100,000.00 which the Board might have drawn for support of inmates remains in the state treasury unexpended.

In his last report, the Treasurer of State computes the decrease in cost of operating the institutions under the control of this Board during the first year, as compared with the cost of the previous year "under the trustee system at $379,490.73, or 26 and nine-tenths per cent." * * * * "This saving, it is fair to presume, was not the result of unwise economies that were detrimental to the institutions. The character of the members of the Board of Control is a sufficient guaranty that such was not the case. They have been the fruits of the application of business principles and methods in the conduct of the fourteen institutions under the Board."

In the last sentence the Treasurer has struck the key note as to how this Board has been able to make such a large saving to the state, and at the same time improve the conditions at the institutions.

Respectfully,
L. G. KINNE, Chairman,
Board of Control of State Institutions of Iowa.

## CIRCULAR LETTER APPOINTING A COMMITTEE ON PROMOTION OF NON-MEDICAL CITIZENS.

**The Illinois State Medical Society.**
**The Illinois State Homeopathic Society.**
**The Illinois State Eclectic Medical Society.**

Chicago, Ill., Sept. 17, 1904.

Mr. .....

Dear Sir:—Your attention is invited to the fact that during the year 1903 about 7,000 persons died of pulmonary tuberculosis in the State of Illinois, and about half of that number in Chicago, alone. This may be regarded as a fair indication of the general prevalence and fatality of the disease.

It means an annual loss to our state of $36,000,000.00 to say nothing of the attending suffering and sorrow.

A large proportion of these lives can be saved by the early recognition of the disease and the prompt placing of its subjects under proper hygienic conditions in "Tuberculosis Camps" within the borders of our own state.

Knowledge of these and of many related facts, had led the united medical profession, without regard to the school of practice, into a movement to secure the establishment and maintenance of such camps by the state for the benefit primarily, of the poor afflicted with the disease, and secondarily, for the protection of the community against its spread.

These methods have the earnest approval of the medical profession of the entire world and are already in successful operation on the continent of Europe and in some of the states of our own country.

Such a camp has recently been established near Ottawa, Illinois, under the administration of Dr. J. W. Pettit of that city, neither for profit nor as a charity, but on as nearly a self-supporting basis as possible,—all medical services being gratuitous, in order to demonstrate the primary fact that tuberculosis can be cured in our own climate.

There is not the least expectation that the enterprise will be wholly self-supporting, but sufficient financial backing has already been pledged by a few philanthropic citizens who are familiar with the facts and are bent on furnishing an object lesson to the people of the state.

The movement to be successful must be made to interest citizens of all classes. The medical profession may have nothing to do with it beyond furnishing gratuitous services. It must be popular. The first step, after the organization of necessary committees, must be the education of the people.

In the furtherance of the general plan, the physicians of the state are ready to furnish newspaper articles, lectures before Chautauqua assemblies, teachers institutes, and other gatherings of enlightened people, and to render any other services that may be required of them, without pay or recognition of any kind beyond the bare travelling and hotel expenses of the lecturers.

It is estimated that such a campaign of popular education and the other steps leading to a

powerfully supported application to the legislature for an appropriation that will establish our state on terms of equality with the most progressive states of the union in the protection of the health and lives of its citizens, can be effectively conducted for less than five thousand dollars.

The undersigned constitute a committee, authorized by the medical organization of the state to organize a committee on Promotion of non-medical citizens who will solicit and administer the funds needed for the accomplishment of the purposes herein set forth.

Will you allow the use of your name in that connection?

Answers may be addressed to any of the undersigned.

Dr. J. W. Pettit, Ottawa, Ill.
Dr. Wm. E. Quine, 103 State st., Chicago.
Dr. Harold N. Moyer, 103 State st., Chicago.
Dr. Anson L. Clark, Elgin, Ill.
Dr. N. A. Graves, 126 State st., Chicago.
Dr. C. L. Mix, 103 State st., Chicago.
Dr. J. R. Kippax, 3154 Indiana ave., Chicago.
Dr. Chas. Adams, 500 Reliance Bldg., Chicago.
Dr. Chas. Gatchell, 100 State st., Chicago.
Dr. Frank Billings, 100 State st., Chicago.
Dr. John B. Murphy, 100 State st., Chicago.
Dr. W. Harrison Hipp, 4446 State st., Chicago
Dr. John B. Matthew, Blue Mound.
Dr. Henry B. Favill, 100 State st., Chicago.
Dr. Homer Thomas, Marshall Field Bldg., Chicago.
Dr. N. B. Delamater, Marshall Field Bldg., Chicago.
Dr. H. V. Halbert, 70 State st., Chicago.
Dr. E. Fletcher Ingals, 34 Washington st., Chicago.
Dr. James B. Herrick, 103 State st., Chicago.
Dr. H. C. Bragdon, 1709 Chicago ave., Evanston, Ill.
Dr. Julia Holmes Smith, 100 State st., Chicago.
Dr. J. P. Cobb, 254 E. 47th st., Chicago.
Dr. George W. Webster, 70 State st., Chicago.
Dr. N. S. Davis, 65 Randolph st., Chicago.
Dr. L. L. McArthur, 100 State st., Chicago.
Dr. S. P. Hedges, 890 Evanston ave., Chicago.
Dr. O. B. Blackman, Dixon, Ill.
Dr. E. H. Reading, 3748 Langley ave., Chicago.
Dr. M. L. Goodkind, 103 State st., Chicago.
Dr. L. E. Frankenthal, 109 Randolph st., Chicago.
Dr. H. N. Bascom, Ottawa, Ill.
Dr. W. P. Armstrong, Springfield.
Dr. Henry Wohlgemuth, Springfield.
Dr. Nathan Starr, Charleston.
Dr. F. Whitman, Elgin.
Dr. W. E. Taylor, Watertown.
Dr. A. J. Ochsner, 710 Sedgwick st., Chicago.
Dr. E. F. Wells, 4571 Lake st., Chicago.
Dr. George R. Schafer, Peoria.
Dr. J. F. Percy, Galesburg.
Dr. A. M. Beal, Moline.
Dr. M. S. Marcy, Peoria.
Dr. J. W. Coyner, Peoria.
Dr. W. E. Neiberger, Bloomington.
Dr. G. N. Kreider, Springfield.
Dr. C. E. Black, Jacksonville.
Dr. E. J. Brown, Decatur.
Dr. A. A. Bondurant, Cairo.
Dr. C. E. Colwell, Aurora.
Dr. J. T. McAnally, Carbondale.
Dr. E. Mammen, Bloomington.
Dr. M. H. Goodrich, Jacksonville.
Dr. Grant Houston, Joliet.
Dr. E. B. Montgomery, Quincy.
Dr. C. B. Johnson, Champaign.
Dr. F. W. Gordon, Sterling.
Dr. E. A. Perrigo, Danville.
Dr. F. H. Jenks, Aurora.
Dr. C. C. Hunt, Dixon.
Dr. J. J. Stealey, Freeport.
Dr. W. F. Spencer, Geneseo.
Dr. T. L. Lowrie, Lincoln.
Dr. E. A. McDowell, Rockford.
Dr. W. R. McKenzie, Chester.
Dr. J. S. Adsit, Hoopeston.
Dr. J. B. Dunham, Wenona.
Dr. J. A. Marshall, Pontiac.
Dr. W. E. Kennicutt, Yorkville.

## SOUTH WESTERN SECTION OF THE CHICAGO MEDICAL SOCIETY.

Regular meetings are held monthly at 540 W. 63d st. Membership—.

**Officers.**

President.....F. L. Rose, 5420 S. Halsted st
Vice President.....Wier
Secretary-Treasurer..C. H. Lovewell, 5500 S. Halsted st.
Official Reporter, T. C. McGonagle..5504 S. Halsted

The South Western Section of the Chicago Medical Society held its 47th regular meeting September 6th, at the Grace Cafe, 540 W. 63rd st. This being the Annual meeting there was no paper to read and the society proceeded to the regular business of the society.

Reports read by the President were discussed and adopted.

The society's report showed the society to have gained in membership and in average attendance over the preceding year, also that our finances were to the good.

The Organization Committee, through its Chairman, Dr. F. R. Green, reported our Section to be the best organized section in the county. The election of officers was next taken up and after several tie ballots between Drs. Rose and Wier for president, it was found necessary to draw, the one drawing the long straw to be president, and the other vice-president. This resulted in Dr. Rose getting the long end of the draw.

Dr. C. Hubart Lovewell was reelected Secretary-Treasurer and Thos. McConagle was elected Official Reporter. It is our determination to out do any previous year and already plans are well under way for our years work.

Thos. C. McGonagle

**Dr. and Mrs. James Nevins Hyde** are in Berlin at present, but will sail to reach Chicago on October 1.

**Dr. Eugene F. McLaughlin** has been sued by Miss Edna VanDreal for $30,000 for alleged breach of promise.

# County and District Societies.

## HENRY COUNTY MEDICAL SOCIETY.

Annual meetings are held at Cambridge the first Tuesday of September. Membership 20.

**Officers.**

President.....L. A. Ferry, Geneseo
Vice-President.....W. H. Cole, Kewanee
Secretary.....H. W. Waterous, Galva
Treasurer.....J. A. Kirkland, Cambridge

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The Society held its regular meeting Sept. 6th, at which there were present: Drs. Ferry Carman, Young Gilbert, Ringnell, Gustafson, Westerlund, Cole, Hall, Waterous and Dr. O. B. Will, Councilor of the district.

The morning session was devoted to hearing the reports of officers and committees. Election of officers and remarks by those present as to how the membership and attendance might be increased.

All the old officers were re-elected.

At the afternoon session, Dr. Will gave an interesting talk upon "Medical Organization," its necessity and purposes. This was followed by a paper upon "Typhoid Fever" by Dr. Cole, one by Dr. Gilbert upon "Ice Cream Poisoning" and a talk by Dr. Ringnell upon the proceedings of the last meeting of the Illinois State Medical Society and some observations made during a visit to the Consumptive Colony at Ottawa.

The meeting was a very successful one, much interest being shown and the program as printed, carried out in every particular.

## CHAMPAIGN COUNTY MEDICAL SOCIETY.

Regular meetings are held in Champaign at the Hotel Beardsley the third Thursday of each month. Membership 60.

**Officers.**

President.....S. S. Salisbury, Champaign
Vice-President.....W. L. Gray, Champaign
Secretary and Treasurer....Jas. S. Mason, Rantoul
Censors.....C. H. Spears, H. E. Cushing, Champaign, and J. A. Hoffman, Pesotum.

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The regular meeting of the Champaign Medical Society was called to order at 2:30 P. M. with the following members present: Salisbury, Matheny, C. P. Hoffman, Johnson, Kariher, T. J. Exton, W. M. Honn, Wall, Dodds, Miner, Lyon, McKinney, Burres, Foelsch, Newcomb, Cushing, Rudy, Mason. Visitors—Dr. Lucy Exton, of Thomasboro and Dr. A. L. Zorger, of Champaign. Minutes of previous meeting were laid over till next meeting.

**The subject of Interstitial Nephritis** was ably presented by Dr. T. L. McKinney, of Gifford. After giving the Etiology of the disease attention was directed to the progressive character of its pathology, finally leading to a two-thirds destruction of the Malpighian tufts and Uriniferous tubules.

Symptoms were discussed under three heads. 1st: The stage of tension. 2nd: That of hypertrophy. 3d: Dilation. Stress was laid upon the need of early recognition of the symptoms of this disease and correction of the habits of eating, exercise, dress, etc., enjoined. Since it is only in the early stages of that effective measure and treatment can be instituted.

The frequent failure of Chemical analysis alone to reveal the kidney lesion was noted and the need of the microscope pointed out.

The importance of the subject called out a spirited discussion. Dr. Johnson narrated a case and dwelt upon the insidiousness of the onset of these cases. Dr. Dodds called attention to a difficulty encountered in these cases when they are recognized early of getting the patient to carry out the needed instructions; since they at this stage do not count themselves sufficiently indisposed to need such radical measures. Dr. Wall discussed the surgical treatment of these cases, referring to the work and statistics of Edebohls in this field and expressed the opinion that surgery, while it may offer something definite in the future in the handling of these cases, is as yet a doubtful procedure.

Dr. Mason questioned the too full use of water in these cases, which phase of the subject was further discussed by Dr. Miner and Dr. Wall. In closing the discussion Dr. McKinney held the view that a study of the resulting pathology of operation on the kidney capsule for relief in these cases condemns surgical measure as being hurtful in the final outcome.

The society was honored by the presence of Dr. Anna Fullerton, who read a paper entitled, "Medical Experience in India." The announcement of this subject attracted a number of the laity to the meeting, who with the members of the society listened to one of the most enjoyable and instructive addresses in the society's history. After a general discussion the society tendered Dr. Fullerton a rising vote of thanks.

The following amendment to the constitution and by-laws of the society was adopted: Amendment to Art. I, Sec. 1. Every candidate for membership shall be proposed in writing giving name of college, place and date of graduation and number of years in regular practice and be recommended by two members of the society.

Meeting adjourned.

## SANGAMON COUNTY MEDICAL SOCIETY.

Regular meetings are held in Springfield the second Monday of each month at 8 p. m. Membership 75.

**Officers.**

President ..... B. B. Griffith, Springfield
Vice President ..... S. E. Munson, Springfield
Secretary-Treasurer ..... C. P. Colby, Springfield
Directors, W. O. Langdon, R. D. Berry, C. R. Spicer

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The Society held its regular monthly meeting, Monday evening, September 12th, in the new Library building. Meeting called to order

at 8:30 P. M. by President B. B. Griffith; there were fifteen members and two visitors present. Minutes of last meeting read and approved. The applications for membership of Drs. F. L. Perkins, Gordon W. Rice, Maurice Altman and O. H. Deichmann were read and handed to the Board of Directors to take the regular course. Bills for $7.05 were read and ordered paid. The Secretary read a letter from Secretary Weis, of the State Society, in which he stated the Society had been assessed for seventy-five members. The Secretary stated the Society would probably be able to pay the full assessment. Secretary Egan's letter explaining the new Pathological and Bacteriological Laboratory was read. Secretary was instructed to acknowledge Dr. Egan's letter and to express the appreciation of the Society. Secretary was also instructed to extend the sympathy of the Society to Dr. Bowcock.

The following paper prepared by Dr. C. M. Bowcock was read:

### Vomiting of Pregnancy and the Use of Chloretone.

The persistent and intractable vomiting of pregnancy, seen all too frequently, is perhaps the most distressing condition met with by the practitioner of medicine. It has been responsible for the termination of the life of the unborn child in a vast number of cases and has not infrequently proved fatal to the mother. Therefore, when any remedial agent can be demonstrated to have a decidedly beneficial effect in such a condition, it is quite proper to call it to the attention of the profession.

I have tried many times to get some effect from the usually prescribed remedies for vomiting of pregnancy, such as Cerium oxalate, Bismuth subnitrate, Calomel and all the rest of them, but without any appreciable permanent effect.

Recently I have been using Chloretone with excellent results in vomiting and sick stomach due to taking an anesthetic and concluded to try it for the relief of vomiting of pregnancy, and shortly afterward I had an opportunity to test its efficacy in two cases whose histories follow.

Case 1. Mrs. A. E., Age 24 years. Domestic. Pregnant three months. Admitted to hospital Dec. 10th, 1903, in an extremely weak condition due to continuous vomiting. Temp. 97, pulse 68. Patient put to bed. Extreme nausea and vomiting. Urine negative.

Dec. 11th, patient remained in bed, condition the same as when admitted. Tem. 98, pulse 96. Cup of beef tea not retained. Gave chopped ice frequently.

Dec. 12th, gave 2 oz. milk, but it was immediately vomited in a curdled condition. When patient was admitted to hospital, Dec. 10th, had not been able to retain nourishment for fully six weeks and was continuously nauseated and would vomit on taking any nourishment.

Dec. 10th, 1903, mustard drafts over stomach, liquid diet, Bismuth subnitrate, 30 grs., every four hours. Bowels moved freely after using Calalactose followed with Salts.

Dec. 11th, same treatment continued.

Dec. 12th, Hyd. Chlor. Mite, grs. 1-16, every half hour. Rest of treatment the same except Calalactose. Gave Chloretone, grs. 5, night and morning. Liquid diet continued.

Dec. 13th, Chloretone continued as before and continued cracked ice. Patient vomited but once toward morning, and slept well.

Dec. 14th, rested well all night; complained of headaches. Bowels constipated. Ordered high enema of soap and water suds which returned followed by very offensive defecation. From this time on bowels acted freely each day. Chloretone, 5 grs., night and morning continued. Free from headaches and vomiting ceased. Remained in bed all day.

Dec. 15th, ordered light diet; patient sat up all day and says she feels well. Nourishment retained and not nauseated. Rested well all night.

Dec. 16th-17th, continued Chloretone, 5 grs., night and morning and light diet.

Dec. 18th-19th-20th, continued Chloretone, 5 grs., night and morning and full diet.

Dec. 20th, patient left hospital fully relieved. Pulse 84, Temp. 98.

This is a very brief report of this case but the result of the treatment with Chloretone, 5 grs., night and morning, was marvelous, considering the short time, in relieving this patient who had been suffering from extreme nausea and vomiting for six weeks and leaving the hospital in ten days entirely relieved.

Case 2. Mrs. S. S., Age 27 years. Housewife. I was called to see this patient Dec. 11th, 1903, and found her in the second month of pregnancy. She was very much emaciated and unable to raise her head from the pillow without vomiting. This was the most aggravated case of vomiting I had seen in 22 years of practice. The patient was unable to take any nourishment or liquid without vomiting. She was very constipated, never having an action from the bowels without previous large enemas. Temperature generally sub-normal, pulse from 56 to 60. Unable to sleep day or night, except for short intervals and on awakening would vomit. Her skin and eyes were very yellow. I put patient on the usual remedies for vomiting of pregnancy; Oxalate of Cerium, Bismuth subnitrate, etc., Ingluvin, 1-16 gr. doses of Calomel. All these without effect. I continued this treatment with large enemas for bowels for several days, but the vomiting did not diminish in the least.

Dec. 15th, I gave 5-grain doses of Chloretone, and liquid diet and continued the enemas—no improvement except slight action from bowels. This treatment I continued for three days with no improvement. Until this time patient had not been able to sleep night or day, only occasional short naps. At this time I was considering the advisability of bringing on premature labor, fearing my patient would die.

Dec. 21st, 1903, I gave Chloretone, 10 grs., before taking liquid nourishment, and to my satisfaction she retained the food. I now gave high enemas of 8 oz. hot glycerine, with good result. I kept the bowels open each day with enemas and gave nourishment altogether by rectum for several days. Patient could obtain

sleep by taking Chloretone, 10 grs., at bed-time. In addition to Chloretone I gave chopped ice and champagne. The examination of urine, Dec. 26th, 1903, showed quite an amount of albumen. Re-examined urine several times afterward with negative findings. During the month of December the nourishment was entirely by rectum.

Jan. 10th, 1904, I renewed liquid diet by mouth which was retained by giving 10 grs. of Chloretone a half-hour before nourishment, which would be retained. I still continued nourishment by rectum every three hours in small quantities. To produce sleep I gave Chloretone, 10 grs., at bed-time. About the middle of January, 1904, patient was taking small amount liquid diet by mouth every four hours and retaining it.

Feb. 2nd, commenced light diet, patient would vomit only two or three times in 24 hours, when before the institution of the Chloretone treatment she was vomiting almost continuously.

Feb. 10th, I reduced Chloretone to 10 grs. twice daily, on awakening and at bed-time. This patient, while not wholly relieved, would now vomit but once a day. During the latter part of February to March 7th, she was able to take light diet without vomiting at all. Soon patient was up and around her room, gaining very much in strength and weight. On my visit Mach 13th, patient was taking liberal diet and able to go up and down stairs and all around the house. At this time I discharged the patient as fully recovered, and give the whole credit to Chloretone.

Shortly after this time I was called out of the city, being absent for some time and during my absence the patient required some attention and her attending physician produced premature labor, for what cause I do not know. Two days after this operation she died.

Chloretone (C4 H7 O C1) is a derivative of chloroform and acetone. It is a white crystalline, volatile compound, having a camphoraceous odor and taste. Warm water dissolves it to the extent of about 1 per cent; on cooling, a portion of the Chloretone crystallizes out, leaving about .8 of one per cent in solution. It is soluble in oils, glycerine etc., and very soluble in alcohol, ether, benzine, acetic acid, chloroform, acetone, etc. Chloretone is a permanent chemical compound, unaffected by heat or light. Even under the action of the gastric and intestinal secretions the molecular constitution is not destroyed.

It is claimed that the vomiting of pregnancy is due to increased irritability of the gastric sensory nerves with co-incident overstimulation of the nerve filaments in the gastric center. If this is true then Chloretone meets the conditions admirably since:

The main action of Chloretone is confined to the central nervous system, it being essentially the same as that of the other anesthetics and hypnotics of the fatty acid series, differing from most of the members of this group in not depressing the circulatory system.

Internally administered, it passes unchanged into the circulation; but "that it is decomposed within the body appears from the fact that, volatile as it is, we do not find it in the expired air, nor has it been positively recognized in the urine." If the "burning down" of the Chloretone takes place in the central nervous system, as it is believed by Wilcox, the methyl radicle (CH3) and the chlorine (C1) liberated have a chance to act directly on the nerve filaments and protoplasmic processes—inducing sleep. The action is the same as that of fatigue. Neither the Heart nor the respiratory centers are depressed. The hypnotic effect passes off gradually, and no "habit" is formed.

Chloretone is more nearly than any other known compound an ideal hypnotic, and it is not less efficient in other capacities—notably as a sedative to the excited "vomiting centre" and neighboring regions concerned in originating asthmatic or epileptic impulses, and as a local anesthetic in the stomach. Its action is not wholly central; it acts upon the brain, unquestionable, but it has a local effect also as my experience demonstrates.

Dr. Bowcock's paper was discussed by every member present. Dr. Hopkins presented a couple of interesting specimens. Adjourned.

## KNOX COUNTY MEDICAL SOCIETY.

Regular meetings are held semi-annually in the Court House, Galesburg, the third Thursday of March and September.
Membership 51.

### Officers.

President, A. F. Stewart.....Oneida
Vice-President, L. R. Ryan.....Galesburg
Secretary-Treasurer, G. S. Bower.....Galesburg
Censors, L. Becker, Knoxville; W. O'R. Bradley, Galesburg; C. F. Bradway, Abingdon.

A regular meeting was held Sept. 15, when the following program was heard:

### Program.

Morning Session—10 A. M. sharp.

1.—**When and What to Charge for Telephone Consultations.** Paper by Dr. W. H. Maley, Galesburg. Discussion opened by Dr. J. U. Long, Maquon.

2.—**The Doctor and the Law.** Paper by E. J. King, Galesburg.

Noon intermission.

Afternoon Session—1:30 P. M.

3.—**Business Methods.** Paper by Dr. C. W. Hall, Kewanee. Discussion led by Dr. L. R. Ryan, on Records; Dr. H. W. Giles, on Collections; Dr. J. F. Percy, on Equipment.

4.—**"Deadheads."** Paper by Dr. J. E. Cowan, Galesburg. Discussion opened by Dr. B. D. Baird, Galesburg.

5. **Investments.** Paper by P. F. Brown, Pres. Galesburg National Bank.

6.—**The Physician and the Press.** Paper by Hon. Thomas Benton Camp, Editor of the Peoria Herald-Transcript. Discussion opened by Dr. L. Becker, Knoxville.

Six P. M. banquet at Union Hotel.

Members: Allen, Archibald R. Williamsfield; Browning, A. P., Hermon; Chalmers, G. S., Galesburg; Cowan, J. A., Galesburg; Denny, A. D., Galesburg; Evans, D. J., Galesburg; Gable, E. O. Knoxville; Gray, Alice A., Galesburg; Gray, H. Galesburg; Hertig, E., Galesburg

Hilton, G. I., St. Augustine; Hopper, H. C., Galesburg; Kimble, T. C., Abingdon; Long, J. U., Maquon; Longbrake, G. A., Galesburg; Miller, J. B., Gilson; Parker, J. J., Yates City; Randleson, J. B., East Galesburg; Rowe, Jesse, Abingdon; Stewart, A. F., Oneida; Tovey, P. E., Galesburg; Truitt, E. E., Maquon; Tyler, F. P., Galesburg; Whitehead, E. I., Victoria.

## MONROE COUNTY MEDICAL SOCIETY.

Regular meetings are heldbimonthly at Waterloo. Membership 9.

**Officers.**

President, J. S. Sennott.....Waterloo
Secretary, L. Adelsberger.....Waterloo

Subject to call the members of the Monroe County Medical Society met in Waterloo, July 28th, and reorganized. Dr. J. S. Sennott of Waterloo in the chair. Dr. J. T. McAnally explained the method of reorganization. Applications for membership being in order the rules suspended and by *viva vice* vote following new members were elected:

Dr. A. J. Lee, Valmeyer; Dr. A. F. Schnellschmidt, Burksville; Dr. I. H. Porter, Monrovia.

## CRAWFORD COUNTY MEDICAL SOCIETY.

Regular meetings are held bi-monthly on the second Thursday. Membership 24.

**Officers.**

President .....Dr. Frank Dunham, Robinson
Secretary ..... Dr. H. N. Rafferty, Robinson
Treasurer ..... Dr. C. Barlow, Robinson

The Society met in regular session on Thursday, Sept. 8, 1904, at the office of Drs. Rafferty, in Robinson, with President-elect Dunham in the chair.

The following members and visitors were present, viz: Drs. Price, Voorheis, Dunham, T. N. Rafferty, Illyes, Edwards, Barlow, Newlin, and H. N. Rafferty; and medical students Brodie Barlow and Chas. Davis.

The minutes of the previous meeting were read and approved, after which Dr. T. N. Rafferty read an interesting paper on **Arterio-Sclerosis,** dealing with the subject largely from the standpoint of etiology.

After a free discussion of the many interesting phases of this subject, Dr. T. J. Edwards read the second paper of the afternoon, his subject being **Aconite as a Febrifuge.** This paper was replete with many good things learned by the author in his forty years of practice, and evoked a very hearty and instructive discussion.

Dr. C. E. Price reported a case of **uraemic poisoning,** with a cholera-like vomiting and diarrhoea as the prominent symptoms.

Dr. LeRoy Newlin casually mentioned the case of a young man exhibiting symptoms of an acute intestinal disturbance, to whom he had given ¼ gr. morphine, with 1/150 gr. atropine, hypodermatically every three or four hours, for two days, with no bad results.

Dr. L. R. Illyes reported a case of **ileo-colitis** in a child of 5 yrs., with irregular chills, fever, and sweating, frequent and persistent vomiting, and dilated pupils. He thought the chills were due to a malarial infection, but the child had not been able to retain quinine. It was suggested that this be given hypodermatically; also that these septic phenomena might be the result of a multiple pyaemic infection of the liver, secondary to the dysentery, and showing as yet no enlargement of that organ.

After the transaction of routine business, the society adjourned, to meet Nov. 10th, at the office of Dr. I. L. Firebaugh.

## PEORIA CITY MEDICAL SOCIETY.

Regular meetings are held in the Observatory Building, Peoria, on the first and third Tuesdays of each month. Membership 77.

**Officers.**

President ..... L. A. McFadden
First Vice President ..... J. C. Roberts
Second Vice President ..... B. M. Stephenson
Treasurer ..... Jeanette Wallace
Secretary ..... S. M. Miller
Censors: E. M. Sutton, one year; A. J. Kanne, two years; F. B. Lucas, three years.

**The Peoria City Medical Society** met in the Observatory building at eight o'clock, Tuesday evening, September 6th, Dr. L. A. McFadden presiding.

The secretary read a communication from the secretary of the State Society, to the effect that at the last annual meeting he had admitted **to membership in the State Society, a physician** of this County who was not a member of this Society, provisional that he would make application to membership in the local society, doing this under the authority of the council.

The secretary read his reply to this, to the effect that the action of the council in this was unconstitutional, that the only portal of entry to the State Society was through the local society, that the State Society had no authority to admit to membership in the State Society persons not members of local societies. In this case we would of course be glad to receive the application of the physician in question, which we would consider solely on its own merits, not recognizing the action of the State Society.

**Dr. Roskoten:** Applications for membership in the State and national organizations must first have the endorsement of the local society. The State Society must not interfere in the affairs of the local society.

**Dr. Eckard:** The council had no right to do this, a member must pay his local and State dues to the local secretary before he is entitled to the privileges of the State meeting.

**Dr. Eckard** moved the following: That we communicate to the State Society that it is the sense of this Society that the applications of physicians not members of this Society, but under our jurisdiction, be referred to the secretary of this society and not be given the privileges of the State meeting till properly entered as members of the local society, and that members of this society desiring to attend the State meeting and who may be in arrears in dues, be referred to the secretary of this society, and that the State secretary shall not accept the State dues and then admit them to the meetings. This resolution was adopted.

**Dr. Collins** presented a boy, 11 years old, who had been **shot in the abdomen** by his

brother while they were playing with a revolver, which they "did not know was loaded," on July 17, 1904. Dr. Paine was called and sent him immediately to the St. Francis Hospital, and in one and one-half hours from the time he was shot he was on the operating table. The bullet entered the abdominal wall in the median line one and one-half inches below the umbilicus. The abdomen contained a large quantity of blood, and a search showed two holes in the mesentery of the ileum about three feet from the caecum. A small mesenteric artery had been severed which was ligated and the holes in the mesentery closed. Six perforations of the intestine were found within twelve inches of the wounded mesentery and were closed with mattress and purse string sutures. The portion of intestine opposite the ligated mesenteric vessels looked a little dark so it was placed just beneath the incision and held there by a gauze drain on each side. The incision was partially closed with interrupted, silkworm gut sutures. His recovery was uneventful.

The recovery was mainly due to the short time elapsing between the reception of the wound and the operation. No time was lost in using rectal insufflations of gas and ether to prove the existence of a perforation.

The peritoneal cavity was not flushed with salt solution. The blood was removed with dry gauze wipes, the most of it being found in the left iliac fossa and deep in the pelvis. The perforations were closed with iodized catgut.

Dr. Collins also presented a boy, 15 years old, who fell down an elevator shaft, 30 feet, on July 19, 1904, and sustained an injury to the brain. He did not regain consciousness until the seventh day afterwards. In a few days it was found that he had a paralysis of the sixth pair of cranial nerves, the external rectus of both eyes being paralyzed. He also developed polyuria. On Aug. 8th he passed 153 ounces of urine in twenty-four hours, Aug. 20th the amount was 188 ounces. Sept. 5th the quantity had decreased to 118 ounces, and the condition of the right eye had improved considerably.

**Dr. S. M. Miller** read a report on the prevalence and distribution of Tuberculosis of the lungs in Peoria based on a study of 725 deaths from consumption here since 1893. (This report will appear in the next issue).

## McLEAN COUNTY MEDICAL SOCIETY.

**Regular meetings are held in Bloomington the first Thursday of each month. Membership 95.**

**Officers.**

President.....F. C. Vandervort, Bloomington
Vice President ..... A. L. Fox, Bloomington
Secretary-Treasurer.....R. A. Noble, Bloomington
Censors: C. M. Noble, J. E. Fenelon. C. E. Chapin

The McLean County Medical Society held its first meeting for the year 1904-5, Thursday evening, Sept. 8, 1904, being called to order by the Pres., F. C. Vandervort at 7:30 P. M.

The minutes of the previous meeting were read and approved.

The committee on resolutions regarding the death of Dr. S. L. Chapin, presented the following resolutions:

Whereas, By an unfortunate and reprehensible deed we have lost a highly cherished and honored brother, Dr. S. L. Chapin; and

Whereas, The nature of his taking off by the hands of an assassin under conditions which were especially grevious and in return for most noble acts and kindness on the doctor's part, appeal to us in a special way; be it

Resolved, First, that we lament the death and loss of our brother, Dr. S. L. Chapin, with a special keenness;

Resolved, Second, that in his demise Dr. Chapin has left the Society a heritage which is to be emulated by the members;

Resolved, Third, that we extend our hearty sympathy to his bereaved family;

Resolved, Fourth, that we furnish a copy of these resolutions to the press and also to the family of Dr. Chapin.

The Board of Censors reported favorably on the following names: E. M. Adams, Gridley; Ralph Fox, City; Ralph Pears, Normal; W. A. Coss, Danvers; H. L. Howell, City and upon motion the Secretary was instructed to cast the ballot favorably for these names.

Dr. Frank Potts, Rush 1904, was proposed for membership by Dr. H. L. Howell. Dr. E. Mammen being absent, the report of the Executive committee was postponed until next meeting.

Dr. E. L. Brown read the paper of the evening, his subject being "Criminal Abortion." His paper pointed out the frequency with which a physician is approached and the ignorance of the majority of patients regarding the magnitude of their crime in wishing to destroy the unborn fetus. He showed that great number of ailments to which woman is heir, is the result of attempted or completed abortion, either self-inflicted or as the result of criminal procedure, and urged upon the members of the profession the necessity of upholding the honor and integrity of the profession by refusing to be a party in any manner to such a procedure. The doctor's paper was well received and he was the receipient of hearty congratulations on the careful and able manner in which he presented his subject.

The following members were present: Vandervort, Fox, A. L., Reedy, Howell, Noble, C. M., Sloan, Chapin, C. E., Covington, Yolton, J. L., Yolton, R. G., Hull, Mullen, Rogers, Covey, Godfrey, Smith, Lee, Laylor, J. B., Brown, Noble, R. A.

## NEWS ITEMS.

Alderman Butterworth is planning to reintroduce in the Chicago council an ordinance to protect the bodies of patients dying in hospitals from undue haste in removal to favored undertakers' rooms. Under the plan the hospital authorities, when there are relatives, must hold the body at least twenty-four hours, unless written permission for the removal is given. Hospitals must provide suitable rooms for the bodies. The Undertakers' association has appointed a committee as follows to take up the subject: Robert K. Sloan, former alderman, chairman; E. L. Dunstan, and A. B. Perrigo.

# The Illinois Medical Journal.

EDITORIAL OFFICE, 522 CAPITOL AVENUE, SPRINGFIELD.

Copy for advertisements must reach the editor's office by the 20th of the month in order to secure insertion.

## PUBLISHER'S NOTES.

The Journal is not responsible for any medical or therapeutical views expressed in this department.

Messrs. Borroughs, Wellcome & Co., of London have an exhibit at the International Exposition, St. Louis, in the Liberal Arts Building, British Chemical Section, Exhibit 16, a full line of the products of that world-renowned firm. These are grouped under Surgical Dressings; Microscopical stains; Test cases; Photographic products; Hypodermical tabloids; Ear drums; Medicine Chests; Pocket Cases; Hypodermic and Ophthalmic pocket cases and Chemicals. The facts that the British Institution was founded and carried to a successful and world-wide ———— by Americans makes this exhibit and this firm of greater interest to all patriotic citizens.

### Comment on Antikamnia and Heroin Tablets.

Under the head of "Therapeutics," the **Medical Examiner,** contains the following by Walter M. Fleming, A. M., M. D.* regarding this valuable combination: "Its effect on the respiratory organs is not at all depressing, but primarily it is stimulating, which is promptly followed by a quietude which is invigorating and bracing, instead of depressing and followed by lassitude. It is not inclined to affect the bowels by producing constipation, which is one of the prominent effects of an opiate, and it is without the unpleasant sequels which characterize the use of morphine. It neither stupefies nor depresses the patient, but yields all the mild anodyne results without any of the toxic or objectionable phases.

When there is a persistent cough, a constant "hacking," a "tickling" or irritable membrane, accompanied with dyspnoea and a tenacious mucous, the treatment indicated, has no superior. In my experience I found one "Antikamnia & Heroin Tablet" every two or three hours, for an adult, to be the most desirable average dose. For night-coughs, superficial or deep-seated, one tablet on retiring, if allowed to dissolve in the mouth will relieve promptly, and insure a good night's rest. In short, it will be found futile to delve for a more prompt and efficient remedy than "antikamnia and heroin tablets" in all bronchial complications with laryngeal irritation, dyspnoea, asthma, wintercough and general irritability of the thoracic viscera."

*Qualified Examiner in Nervous and Mental Diseases for Supreme Court, New York City.

### Endermol, a New Vehicle for Ointments.

By Virgil Coblentz, Ph. D., Pharm. M., F. C. S. New York.

(Reprinted from the Medical News, Sept. 3, 1904.)

Endermol, a combination of stearic acid amide and paraffin hydrocarbons, forms an almost white mass of about the consistency of lard, inodorous, of neutral reaction and fusing at 78° to 80°C. The iodine absorption number is 16.98, while that of lard averages about 62; a point in favor of the former as a vehicle for iodine.

When exposed to the air and sunlight under adverse conditions, samples of Endermol retained their color, consistency and blandness. When applied to the skin by inunction, Endermol forms a smooth, soft, unctuous mass which is readily absorbed. This may be demonstrated comparatively by applying a little of petrolatum, lanolin and Endermol in separate portions by inunction to the skin and noting the time required for absorption. Furthermore, applications of Endermol ointments of iodine (without potassium iodide), and also of aconite were followed by the excretion of iodine in the urine after about five hours in the former, and the characteristic dryness of the throat in the latter.

Rancidity in fats is due to hydrolysis or splitting up of the esters of the fatty acids, with liberation of the free acids. To the presence of these the irritating properties of rancid fats are due. In Endermol, consisting chiefly of stearic amide, we have a stable fatty acid derivative which is not decomposed under any conditions through the action of light, air, moisture or such chemicals as are usually employed in ointments.

To demonstrate the adaptability of Endermol as a vehicle for ointments, mechanically as well as chemically, ointments with such substances as the yellow and red mercuric oxide, yellow and red iodide of mercury, zinc oxide, lead subacetate and carbonate, ichthyol, tar, vegetable extracts and mercury were prepared. All of these yielded smooth, uniform ointments which showed no change whatever upon exposure.

The use of petrolatum, as is well known, is restricted to that of a dressing and this to a limited extent owing to its immiscibility with water, certain chemicals and galenicals.

Lanolin, an excellent vehicle, is objectionable because of its stickiness and toughness; and when combined with animal fats (as in lanolin creme), such ointments become rancid and offensive.

There is nothing so objectionable to either the physician or pharmacist as a rancid ointment. While lard or other animal fats may originally have been anhydrous and benzoinated yet rancidity ensues sooner or later, particularly so when aqueous fluids have been incorporated, as frequently is the case in ointments. Aside from the irritant action, chemical reaction of

the liberated fatty acids upon the medicinal agent follows.

Again, lard substitutes consisting of mixtures of suet or tallow or cotton-seed oil, stearin with cotton seed, sesame or cocoanut oils, are not only open to the same objections, but also the possible presence of alum, alkalies or water, which render them still less desirable.

Because of its blandness, pliability and freedom from stickiness, Endermol is especially adapted as a lubricant for massage treatment, always leaving the skin soft and pliable.

To sum up, the advantages of Endermol as an ointment vehicle are:

Absolute freedom from any tendency towards rancidity, although as much as 15% of water may be incorporated.

Ready penetrability and absorption.

Pliability, smoothness and freedom from stickiness.

Freedom from irritating properties.

## UTERO-VAGINAL CATARRH,

**By Louis P. Reimann, M. D., Philadelphia, Pa.**

During the past two years I have experimented with Glyco-Thymoline in the treatment of some of the catarrhal conditions which affect the female genitalia. The splendid results which I obtained on the naso-pharyngeal mucous surfaces led me to try it on other mucous surfaces where the conditions were substantially the same. Actual clinical experience has proven to my satisfaction th t in Glyco-Thymoline the practitioner has at his disposal a remedial agent which in my opinion, is unquestionably superior to the topical applications which I formerly employed. Without fear of contradiction I can say it is by far the best deodorant ever put in a purulent vagina. Under its influence the character of the discharge is rapidly altered and that comfort, relief and freedom from malodor which is of so much importance to the female patient, is secured.

Glyco-Thymoline, by reason of its peculiar composition, produces the rapid depletion so desirable, cleanses the surfaces and maintains an aseptic condition of the parts.

As an irrigation for the uterus and vagina, solution of 10 to 25% are most desirable; when the uterus is highly congested an intrauterine irrigation of pure Glyco-Thymoline will produce wonderfully good results.

When I exhibit Glyco-Thymoline on tampons I find that either pure Glyco-Thymoline or Glyco-Thymoline two parts, Glycerine, one part, produces the best results.

Below I cite two typical cases which I have tested with Glyco-Thymoline during the past year.

Case 1. Miss R., age 23, weight 107, height 5 feet 2 inches. Profuse leucorrhoea (idiopathic.) She was very miserable and "run down," anemia, very nervous, severe pain in back; discharge was profuse and acrid and excoriating congestion of cervix, excoriation of vulva. Treatment: Ordered hot douches (110°) to be taken twice daily medicated with Glyco-Thymoline two ounces to quart and put the patient on the following mixture:

| | |
|---|---|
| Acid Phos. dil. | 3 iii |
| Tr. Ferri Mur. | 3 ii ss |
| Tr. Quassia | 3 iv |
| Tr. Card. Co. | 3 ii |
| Saturated Solution Magnesia Sulph. | as. ad. 3 viii |

M. 3 iv. 4 times a day and Pil. Aloin. Bellad. Strych. et Ipecac; Sig. Take one each night at bed time.

This treatment was persisted in for two months when she was discharged entirely well, had gained in weight and was entirely well.

Case 2. Ulceration of Cervix. This patient had been treated with Boro-Glyceride, Iodine, Ichthyol, etc., but without much benefit. Resolved to try Glyco-Thymoline which I accordingly did. Tamponed with lamb's wool saturated with pure Glyco-Thymoline which was allowed to remain for twenty-four hours. On removal a hot douche of 10% solution of Glyco-Thymoline was given and tampon again introduced. This treatment was given for three weeks when the patient was discharged cured.


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